THE SEGREGATION STEREOTYPING BIND:

Social Networks and Resource Acquisition among Men And Women Business Owners in Gender Typical and Atypical Sectors

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Throughout the pages that follow, much is made of the importance of social capital, and, perhaps more crucially, social networks, to the achievement of individual goals. The completion of this thesis was impossible without the assistance, support and guidance of many members of my own social network, and it is only right to recognize their contribution here. I am particularly grateful to my Director of Studies, Rosemary Lucas, and my supervisors Julia Rouse and Dilani Jayawarna for their wise instruction, insightful counsel, practical recommendations and patience throughout this long, and oft-times, difficult process. I wish also to thank all of those who agreed to participate in the empirical research. The late Nora Ephron, feminist, and latterly, filmmaker, spoke of the "devastating burden" imposed on individuals who are perceived by society as trailblazers, or pioneers. Of Bernice Gera, the first female baseball Umpire, Ephron wrote of her awe: "I think of the ridicule and abuse that woman will undergo, of the loneliness she will suffer if she gets the job, of the role she will assume as a freak, of the smarmy and inevitable questions that will be raised about her heterosexuality, the derision and smug satisfaction that will follow if she makes a mistake, or breaks down under the pressure, or quits" (Ephron, 2000: 61). I too am in awe of the moxie and resourcefulness of the entrepreneurs who completed by survey, and I am especially grateful to those that took the time to follow up the research with their musings and opinions. Finally, special thanks go to Joel Rock, without whose love, encouragement and comfort, this thesis would not have been completed.

ABSTRACT

This thesis is concerned with gender segregation in entrepreneurship – a phenomenon that is termed here *entrepreneurial segregation*. Researchers studying occupational segregation have established that sex segregated social networks and gender stereotyping play an integral role in driving sex segregation in employment. Since women are embedded in female-dominated networks and men move in male-dominated circles, they inevitably receive job leads (resources) from members of the same sex. In addition, because of gender stereotyping, those supplying the job leads (resource providers) offer job seekers information about jobs in sectors that are perceived as appropriate for the jobseeker's gender. Drawing on this knowledge, Bourdieuian social capital theory and gender role congruency theory, this thesis examines the social networks of men and women entrepreneurs in gender congruent and incongruent business sectors, with the express purpose of uncovering whether an inability to secure business resources poses inhibitive effects on business development of entrepreneurs in gender atypical sectors. Taking an inclusive approach, the purpose of the study was to identify and explain any detriment in resource acquisition experienced by women business owners by comparing their experiences in different industries with those of men.

255 New York City based entrepreneurs operating firms in two male-dominated industries (construction and sound recording), one female-dominated industry (childcare) and one integrated industry (publishing) completed an online survey based on the Dutch Resource Generator social network tool. Respondents indicated the specific resources they were able and unable to secure through their networks, the sex of, and relationship to each resource provider, and their experiences of gender stereotyping. A mixture of bivariate and multivariate statistical analyses (Mann Whitney and Kruskal Wallis tests, multiple regression and discriminant function analyses) was used to examine the data. The findings revealed that the ability to mobilize resources is strongly influenced by the sex composition of entrepreneurs' networks, and an interaction between the sex of the business owner and the gender-domination of the industry in which he or she operates. In the female-dominated childcare industry, women were just as successful as men in their attempts to secure resources. Women operating businesses in male-dominated sectors suffered in terms of their ability to obtain resources, particularly financial resources. Men owners of childcare firms did not suffer in the same way, even though they reported relatively high levels of discrimination against them by staff, customers, suppliers and colleagues.

Networking strategy had little impact on the ability of nontraditional women to secure resources. This suggests that nontraditional women are locked into a kind of networking bind, a phenomenon that is dubbed the *segregation-stereotyping bind*.

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CHAPTER ONE: Introduction

"You cannot imagine how ridiculous I felt the day I realized that I had a woman babysitting my children while I did volunteer work in the nursery where she had dropped her kids off in the morning"

- Erma Bombeck, cited in Keller (1994: 91) originally in *Ladies Home Journal*, 1978

1.1 Gender and business ownership

Business ownership is no longer a male preserve. Statistics suggest that something like one quarter of self-employed people in the UK are women (Allen, Langowitz and Minniti 2006; Zalevski and Maruyama 2010). While Global Entrepreneurship Monitor (GEM) survey data shows that this figure has remained fairly static in the past two decades (Kwong, Jones-Evans and Thompson 2012; Saridakis, Marlow and Storey 2013), American women have entered self-employment and business ownership in unprecedented numbers. In the USA, women now own around 40 percent of businesses (National Association of Women-Owned Businesses 2013) up from 5 percent in 1972 (Hanson and Blake 2005). This development has spurred scholarly interest in the phenomenon of *the woman entrepreneur.* Before the 1970s, almost nothing was known about women business owners (Baker, Aldrich and Liou 1997). Knowledge of their backgrounds, experiences and activities was simply derived from research undertaken on male samples (Moore 1990a). Since then, researchers have taken a gender perspective on topics such as entrepreneurs' start up motivations (McClelland, Swaill, Bell and Ibbotson 2005; BarNir 2012; Manolova, Brush, Edelman and Shaver 2012), psychological traits (Kirkwood 2009; Bergman, Rosenblatt, Erez and De-Haan 2011; Verheul, Thurik, Grilo and van der Zwan 2012), style of leadership (Moore, Moore and Moore 2011; Orser, Elliott and Leck 2011b; Moore 2012; Patterson, Mavin and Turner 2012), business performance and growth (Morris, Miyasaki, Watters and Coombes 2006; Shaw, Marlow, Lam and Carter 2009; Robb and Watson 2012) and access to financial support

(Marlow and Patton 2005; Mitchell and Pearce 2005; Muravyev, Talavera and Schafer 2009; Bellucci, Borisov and Zazzaro 2010).

TABLE 1.1 SUMMARY OF RESEARCH ON WOMEN, MEN AND ENTREPRENEURSHIP

Wave	Dominant Themes	Key Studies	Findings
1970s/ 1980s	Start-up motivations, personalities and psychological profiles	Schwartz, 1976; Watkins and Watkins, 1984; Birley, 1989; Goffee and Scase, 1985; Bowen & Hisrich, 1986; Hisrich, 1986	Women and men business owners have similar motivations and psychological profiles; but there are some sex differences in education, self confidence and management styles
1990s/ early 2000s	Challenges including low growth and difficulty accessing funding	Loscocco and Robinson, 1991; Carter and Cannon, 1992; Rosa et al, 1996; Johnson and Storey, 1993; Gundry and Welsch, 2001	Women-owned firms generate lower sales relative to male-owned firms; women start-ups are smaller; women-owned firms have lower growth rates, employ fewer staff and serve local markets; women have difficulty funding start-up and growth. Women and men own firms in different sectors.
2000s-present	Social capital, social networks, external relations; work-life balance	Fielden, 2003; Robb, 2002; Walker and Webster, 2004; Brush et al, 2004; Welter and Trettin, 2006; Hanson and Blake, 2009; Robinson and Stubberud, 2009; Verheul et al, 2009	Sex differences in firm survival, performance and growth relate to differences in networks; social capital and work-life balance; (male) stakeholders' exclusion of women from important communication links; socio-cultural barriers regarding the position of women in society. Women's attitudes to growth are conditioned by socialization

Table 1.1 summarizes the key topical concerns of researchers in the field over the past four decades. Several excellent reviews of this literature are available (e.g Moore 1999; Brush and Edelman 2000; Greene, Hart, Gatewood, Brush and Carter 2003; Loza 2011; Hughes, Jennings, Brush, Carter and Welter 2012) and space does not allow a comprehensive disquisition of the oeuvre here. Suffice to say that much work has compared women and men business

owners, and there is now somewhat of a consensus among researchers that there are few significant sex differences with regard to motivations, personalities, behaviors and psychology (although some observe differences in human capital and management style). This could indicate that sex is not the relevant characteristic on which entrepreneurs should be compared. Some academics (e.g Loscocco and Robinson 1991; Loscocco, Robinson, Hall and Allen 1991) have noted that greater differences are observed when comparing the *firms* of women and men (as opposed to the entrepreneurs themselves). Perhaps then, "it is not so much sex that differentiates one company owner from another; rather it's the type of business and the industry in which the company operates" (Allen 1996: ¶ 4).

Studies that compare the size, growth and performance of men-owned and women-owned firms demonstrate this point amply. Early studies concluded that women-owned firms have higher rates of discontinuance than those owned by men (Carter, Williams and Reynolds 1997), as well as lower annual sales (Chaganti and Parasuraman 1996), lower income and income growth and fewer employees (Fischer 1992). Although it could be debated whether these observations are a matter of theoretical importance (women, like many small firm owners, may simply have modest growth aspirations (Marlow and McAdam 2012a, 2013)), it should also be noted that the impact that differences in business sector have on performance variables have often been overlooked. In fact, studies that have matched samples based on sector have revealed far fewer sex differences in business performance (Kalleberg and Leicht 1991; Loscocco and Leicht 1993; du Rietz and Henrekson 2000; Litz and Folker 2002; Headd 2003). Some of these studies are now discussed.

Drawing on both qualitative and quantitative data, Chell and Baines (1998) found no significant sex differences in the performance of 200 micro enterprises in two British cities. However, the authors utilized just one measure of business performance – turnover. Using a large random sample, du Rietz and Henrekson (2000) did find that women-owned firms

underperform relative to men-owned firms on several measures (increases in sales, profits, employment and orders/commissions), but sex of owner was no longer a significant determinant of performance when structural factors, including industry and receiving sector, were controlled, and there were no differences in the performance of one-person enterprises. Hokkanen and Autio (1998) restricted their sample to businesses over three years old in the business services sector and matched women- and men-owned firms in terms of establishment year, legal status and geographical location. In their results, sex was uncorrelated with all measures of performance (sales, sales growth, number of employees, growth in number of employees and growth aspirations). In summing up, they speculated that earlier findings were skewed because men-owned businesses are more common in manufacturing, a sector that enjoys greater levels of growth than sectors in which women predominate.

In a longitudinal study of eating and drinking establishments, computer sales and software companies, and health-related firms in Indiana, Kalleberg and Leicht (1991) found no sex differences in the rate of business dissolution, growth of earnings, confidence of owner or level of innovation. Only one factor associated with survival was found to have differential effects on the success rates of men's and women's firms – involvement in a previous business venture. Within-sector analyses of Census Bureau data by Headd (2003) and Robb (2002) have also challenged the convention that men-owned firms have higher survival rates than women-owned firms.

In a comparative study on business revenues, Loscocco and Robinson (1991: 521) concluded that "women approached an equivalent share of business when they operated in the major industry categories that capitalize on traditionally male-defined skills, such as construction, mining, and transportation and communication services" and "those women who operated retail or service businesses dealing with automobiles did particularly well relative to men". Lowrey's (2005) examination of US sole proprietors supports

this finding. He found that women sole traders were more competitive in male-dominated business activities. Compared to men, women real estate agents and brokers reported similar net income as a percent of gross profits; in janitorial and related services, women made more average annual net income than men. And, while the average woman-owned firm generated revenues of $186,000 in 2002, woman-owned Wholesale Trade firms averaged more than $1.9 million, woman-owned construction firms around $617,000 and woman-owned Manufacturing firms $956,000 (National Women's Business Council 2004).

Examining four periods of data on almost 5000 Australian SMEs, Watson (2002a, 2002b) discovered that while the income and profit of firms owned by men were on average higher, data on return on assets and return on equity (which Watson argues are more useful measures of profitability than sales and profit because these do not pick up on the fact that women invest less in their firms) suggested that women-owned businesses outperformed men-owned businesses. Additionally, once industry, age of business and working hours were controlled, there was no significant variation in profitability that could be attributed to sex of owner; rather, industry was the more important factor in explaining the variance in business performance. Kalnins and Williams' (In Press) analysis of one million enterprises in Texas showed that once controls for industry were applied, women-headed businesses actually outlive those headed by men. Finally, Lee and Marvel's (2013) analysis of the relationship between firm characteristics and firm performance in the Korean context found that the assets and resources held by a venture fully mediate the relationship between sex of owner and firm performance.

To summarize, comparative studies have treated men and women entrepreneurs as members of two single, cohesive and contradistinct groups. Yet the short review above suggests that, if such comparisons of entrepreneurs are to be undertaken, they should be performed *within* sectors, because women and men owners are concentrated in very different industrial

settings, and these settings impinge on the activities of these businesses and the behaviours of the people that run them. For example, the clustering of women- and men-owned firms into gender-typed sectors may be linked to reported 'sex' differences in earnings, profitability and growth.

If sector has been controlled in previous research, it has been broadly so, with most research on women focusing on the broad "retail", "services", or "high technology" sectors (e.g. Schmidt and Parker 2003; O'Gorman and Aylward 2007; Mayer 2008). This ignores the considerable diversity of business types that are grouped into these vast categories and adds another layer of complexity to the relationship between business context and gendered business outcomes. As Rosa and Hamilton (1994: 25) pointed out 15 years ago, the "precise 'gender' findings of a study may be a consequence of the sectoral mix of the sample as much as genuine social trends impinging on the small business community".

There is therefore a need for research that considers similarities and differences both between- and within-sex categories. This need has been acknowledged as far back as the 1980s when research into women entrepreneurs was beginning to proliferate. Back then, researchers lamented that the dominant representation of women entrepreneurs was "very uneven" (Bowen and Hisrich 1986: 404), that the only characteristic shared by businesswomen was diversity (Holmquist and Sundin 1988), and that comparisons between women in traditional industries and "female entrepreneurs who have broken into more traditionally male enclaves such as construction, manufacturing or finance" (ibid: 405) were required. This appeal has since been echoed by several academics (Brush 1992; Carter and Cannon 1992; Allen 1996; Brush 1997; Carter and Allen 1997; Cately and Hamilton 1998; Fasci and Valdez 1998; Haines, Orser and Riding 1999; Mirchandani 1999; Brush, Carter, Gatewood, Greene and Hart 2004; Parker 2010).

1.2 Entrepreneurial segregation and business resources

I term the concentration of women and men business owners in separate sectors of the economy *entrepreneurial segregation*. Sectors are important because, like occupations, the settings in which entrepreneurship is practiced "carry characteristic images of the kinds of people that should occupy them" (Kanter 1977: 250). Entrepreneurship has been recognized – at least by scholars attached to the feminist and sociological schools – as an androcentric concept for some time (Green and Cohen 1995; Bird and Brush 2002; Bruni, Gherardi and Poggio 2004b; Ahl 2006; Lewis 2006; Ahl 2008; McAdam 2013). It is argued that the popular notions of the 'entrepreneur'; - hero, captain, adventurer, explorer - are undoubtedly masculine, and the features of entrepreneurship as an activity - risk-taking, innovation, emotional detachment, initiative, rationality, leadership ambition - align closer with the stereotyped characteristics of men, rather than those associated with women (Gupta and Bhawe 2007; Gupta, Turban and Bhawe 2008).

Yet, while entrepreneurship is acknowledged as gendered, the *contexts* in which it is practiced appear to have been universalized and stripped of gender. Sectors, however, are highly gendered. That sectors are sex segregated inscribes deep notions of gender in the organisations that operate within them, the jobs that take place under their auspices and the products or services they produce (Kanter 1977). Importantly, sex segregation influences the shape, nature and content of social networks: determining the nature of linkages and interactions, the expectations and assumptions of interactants and the ways in which gender is 'performed' on the job (West and Zimmerman 1987; West and Fenstermaker 1993).

The relationship between segregation and social networks has been well demonstrated in the extensive literature on job seekers. Drawing on the seminal work of Mark Granovetter (1973), researchers in that field have shown that sex-segregated social networks help to produce and maintain sex

segregation in employment (Hanson and Pratt 1991; Beggs and Hurlbert 1997; Drentea 1998; Mencken and Winfield 2000; Huffman and Torres 2002). These studies suggest that two gendered processes act in conjunction to drive women and men into gender typed jobs. Firstly, since women are embedded in female-dominated networks and men move in male-dominated circles, they inevitably receive job leads (resources) from members of the same sex. Secondly, because of gender stereotyping, those supplying the job leads (resource providers) offer job seekers gender-typed leads; in other words, women job seekers receive tips about female-typed jobs but rarely about male-typed jobs, and men receive leads about male-typed jobs and fewer about female-typed occupations. So, sex segregated social networks and gender stereotyping work together to create sex segregation in employment (Mencken and Winfield 2000; Kmec, McDonald and Trimble 2010).

Just as job hunters seek leads from network members, so business owners too must network in order to locate, access and appropriate the resources necessary to start, run and grow their enterprises (Wernerfelt 1984). But the extent to which resources and resource providers drive business owners into sex-segregated sectors, and inhibit access to resources is not known. Given the relative success of women-owned, non-traditional firms, knowledge about the networking activities of women owners in male-dominated sectors may prove to be particularly informative. Because of gendered notions about the 'proper' role of women in business, "a woman entrepreneur within a male-dominated industry or culture may carry the invisible-yet-cumbersome baggage of sex-based stereotypes when she attempts to secure resources, develop business networks, and gain legitimacy for her business venture" (Godwin, Stevens and Brenner 2005: 624). There is therefore a need for research that examines empirically the relationship between sex, gender-type of business sector and the ability to mobilize business resources.

1.3 Definitions and understandings

For the purposes of this thesis, entrepreneurial segregation is defined as the unequal concentration of men and women business owners in different, gender-typed sectors of the economy. The terms 'business owner', 'entrepreneur' and 'self-employed' are used interchangeably, although the debate over who exactly is an 'entrepreneur' is acknowledged (see chapter 5). Following the conventions established in the literature, I use the terms 'gender typicality' and 'atypicality' (Erickson, Albanese and Drakulic 2000; Kmec et al. 2010), 'traditional' and 'nontraditional' (Center for Women's Business Research 2005; Loscocco, Monnat, Moore and Lauber 2009), and 'congruent' and 'incongruent' (Brescoll, Dawson and Uhlmann 2010) to describe business owners that operate firms in sectors that are considered usual or unusual for their gender. Furthermore, gender and sex descriptors are used interchangeably when describing the way in which sectors and occupations are segregated. For instance, the terms 'female-dominated' and 'woman-dominated' reflect the fact that occupations and sectors carry stereotypes that are both descriptive ('this is what women do') and prescriptive ('this is what women should do').

Although the key theoretical underpinning of this thesis - gender role congruency theory - is discussed in greater detail in chapter 3, I take some time here to address those aspects of the theory, from which an understanding of the distinction between sex and gender is drawn. This is no easy enterprise for the precise nature of the boundary and relationship between these concepts is highly contested (Zack 2005). The basic argument is between those that - even implicitly - continue to uphold the heteronormative binary assumption that sex and gender are isomorphic (Hyde 2005), and those (a substantial proportion of social scientists and psychologists) that generally argue that the two are distinct and must not be conflated (Holmes 2007). Yet even the latter camp is a broad church in terms of viewpoints regarding the exact nature of the link between sex and gender: there are those of the view that there is a causal trajectory that runs from the

biologically sexed body to socially gendered behaviours and preferences, while others still argue that in fact, the link is the other way around with "gender caus[ing] us to perceive the natural world (the body) in a particular way, and thereby to impose upon it the dichotomous category 'sex'" (Jordan-Young 2010: 17).

It is necessary to establish one's own position on this topic both in the interests of clarity and if the propositions that are established in the following pages are to be resounding. In accordance with Alice Eagly's (1984; 2002) conceptualization of gender role congruency theory, 'sex' is understood here as a biologically designated category that delineates an individual as female, male or intersex on the basis of anatomical and physical bodily attributes (Holmes 2007; Ryle 2012). I define 'gender', on the other hand, as a mutable, multi-dimensional concept that denotes unconscious, internalized attitudes and socially enacted role sets that are "defined by society as masculine or feminine, which are embodied in the behavior of the individual man or woman and culturally regarded as appropriate to males or females" (O'Neil 1981: 203). Furthermore, these behaviours are invoked as empirical evidence that men and women are "different in socially significant ways and [society] organizes relations of inequality on the basis of the difference" (Ridgeway and Smith-Lovin 1999: 192). This inequality manifests itself in many ways – access to education, parental roles and occupational hierarchies are just a few examples. The manifestations of inequality that are measured and captured in this thesis are the unequal access to resources that constrain entrepreneurial choices and capacities.

The definitions above, I believe, stress the distinctiveness of sex and gender from one another, but yet also their inexorable co-existence. In this respect, these conceptualizations go beyond the ontological understandings of sex and gender that are conventional in feminist philosophy and are closer to a critical realist position (New 2005). Although she does not call herself a realist, Judith Butler takes a stratified ontological position on gender that has unsettled the

ease with which many feminists have traditionally distinguished between corporeal sex and social gender (Kirby 2006). Butler (1993) challenges the concision of the sex/gender distinction by contending that individuals' 'gender acts' influence them in such material, physical ways that their perception of bodily sex differences are impacted by social convention. Sex "is not a simple fact or static condition of a body, but a process whereby regulatory norms materialize 'sex' and achieve this materialization through a forcible reiteration of those norms" (Butler 1993: 2). Using reasoning that seems to parallel the language used by critical realists (see chapter 4), Butler seems to argue here that sex is not an innate, pre-discursive truth, but that making any observation about sex is tantamount to the imposition of ideological or cultural norms. Sex thus "becomes something like a fiction, perhaps a fantasy, retroactively installed at a prelinguistic site to which there is no direct access" (Butler 1993: 5). The upholding of that fiction has material effects, which we may call gendering. Thus, just as gender is a mere verisimilitude, sex should not be treated as "a bodily given on which the construct of gender is artificially imposed, but... a cultural norm which governs the materialization of bodies" (Butler 1993: 2-3).

The myth of sex dimorphism to which Butler alludes is accepted by many neuroscientists and biologists (Fausto-Sterling 2000). Aside from the ability to reproduce, the number of physiological differences between men and women is in fact, exiguous: "women have moustaches, men get breast cancer, and the plethora of supposed expressions have no essence behind them" (New 2005: 63). Many other so-called sex differences are exaggerated by gendered practices – the sexual division of labour that can be traced as far back as hunter-gatherer societies is said to exaggerate sex differences in strength and endurance (Birke 2000; Blau, Ferber and Winkler 2006). With this in mind, and given the inability to access the ontological substance of sex, the best we can hope for is to conceive of sex and gender as "simultaneously distinct, interrelated, and somewhat fuzzy around the boundaries" (Jordan-Young, 2010: 16). To be clear, I do not contend that social gender is ineludibly

determined by biological sex; rather, the propositions that are set out in this thesis are guided by the understanding that, as a consequence of historical design or accident, society currently interprets the spheres as interconnected, and it is this failure to delineate the two from which *gender* stereotyping is derived.

An understanding of the non-immunity of gender from the influence of sex is at the heart of gender role congruency theory and forms the theoretical foundation of this thesis. This is not a study of *real* sex differences, nor even of *real* gender differences, but a study that examines how society *believes* that the sexes differ, and the inequalities that arise from those supposed differences. The key propositions advanced in this thesis stem from the belief that gender roles emanate from, contribute to, and reproduce the specialization of the sexes into occupational activities for which society deems them to be better suited (Ryle 2012). Such segregation means that "a person engaged in virtually any activity may be held accountable for the performance of that activity as a woman or a man, and their incumbency in one or the other sex category can be used to legitimate or discredit their other activities" (West and Zimmerman 1987: 136). In other words, presumed competence in an activity or role is determined by stereotypes that are both prescriptive and descriptive in nature. Where a role is typically undertaken by women, or society *expects* that it be undertaken by women (e.g. childrearing), women are presumed to be more competent than men. Where a role is typically undertaken by men, or society *expects* that it be undertaken by men (e.g. construction), men are presumed to be more competent than women. Said differently, occupations, including business-related occupations, as a key life role, are highly *gendered*. Violation of the injunctive codes concerning gendered roles precipitates social disapproval that may manifest itself as, among other consequences, discrimination.

With these arguments in mind, the term 'sex' is used throughout this thesis to refer to the female and male categories (noting that these are not the only

available categories, but these are relevant to this study), while the term gender is retained to refer to the psychosocial implications of being female or male, especially expectations about the roles deemed appropriate for the sexes. In practical terms, the term *sex segregation,* which I use throughout, refers to the observed concentration of men and women in different jobs and occupations. But I use the term *gender stereotypes* to refer to the notion that men and women should ascribe certain behaviours or activities. Similarly, I never use the term *sex role* to refer to consensually held expectations of behaviour for the sexes but always *gender role***.**

Finally, it must be noted that this gendering of business-related occupations has implications for men as well as women, and for this reason, an inclusive approach is taken to the sampling strategy in this study (see chapter 5). This could attract criticism; some feminists, for example, may question the inclusion of men in a study with such a focus, as this may be seen to contradict feminist theory. In this regard, two defences are offered. Firstly, this investigation adopts an *inclusive* approach to the study of gender. The current study concerns gender stereotyping, and the term 'gender' is an inclusive one. There is thus no reason to exclude men from an investigation into gender role congruency in business ownership. Anne Jorunn-Berg (1997: 35), has argued that gender "sticks more easily to women". Just as gender tends to be viewed as an attribute that is only possessed or performed by women, gender segregation is typically studied from the perspective of women. Thus, we may readily read of the experiences of women pilots (Davey and Davidson 2000), women engineers (Watts 2007) and women construction workers (Martin 1997) but there is a dearth of published accounts of the experiences of men in traditionally female roles. This is a practice that serves to elevate men to the status of "ungendered representatives of humanity" (Johnson 1997: 9) – a norm from which women deviate. To be sure, much of the existing research on gender and entrepreneurship ardently seeks differences between 'the female entrepreneur' and her male counterpart. This accentuates the perception that men are the norm in entrepreneurship, which effectively

reduces them to a control group and intensifies the 'othering' of women in entrepreneurial roles (Ahl, 2006). This work treats the comparison very differently – in this thesis, men are not a neutral control group, but I seek to understand more clearly the social impact on *both* men and women involved in the counter-hegemonic struggle.

Secondly, this investigation adopts an *anti-essentialist* approach to the study of gender. Like hooks (1981), I believe that notions of uni-masculinity and uni-femininity are misguided and must be deconstructed. At the heart of this study is a stress on the diversity of both women and men entrepreneurs and a reluctance to reduce them to membership of monolithic and distinct categories. I recognize that entrepreneurs, like all individuals, possess a whole range of other identities as well as their sex category and gender role. And, exploring the diversity of femininities as well as masculinities "can serve to break down the very gender dichotomies on which patriarchy relies, as well as opening up space for coalitions between men and women across sexual, ethnic, class, able, and disabled identities and other categories which we are only beginning to care about" (Lohan 2000: 180). For this reason, comparisons between groups of individuals are undertaken not merely on the basis of sex, but also in terms of gender congruency and incongruency, and where data allows, on the basis of self-reported characteristics such as ethnicity and sexual orientation (see chapter 6). The opening up of gender discourses relating to business-related occupational choices means studying both men and women's experiences and the ways in which they are gendered. Just as there are many femininities, so too are there many masculinities. Gender role congruency theory highlights that in certain contexts, some sexes, some genders and some sexualities are afforded higher regard than others – highlighted most convincingly in R.W. Connell's (2000) treatise on hegemonic masculinity. In this project, I examine one such context – the sector of self-employment. The deviation of both women and men business owners from the expected status in that context produces

consequences for them and thus it would seem illogical to eliminate men from a study on gender segregation in business ownership.

1.4 Aims, objectives and research questions

The overarching aim of this study is to disentangle empirically the effects of sex and gender-type of business sector on the ability of business owners to successfully mobilize resources from their social networks. Within this broad aim, the following objectives are identified:

1. To describe, compare and contrast the network characteristics of men and women business owners in gender typical and atypical sectors;
2. To identify whether the networks of gender congruent and incongruent business owners differ, and in what ways;
3. To identify the links between network composition and resource acquisition and the ways in which these differ for gender congruent and incongruent men and women business owners;
4. To identify whether experiences of discrimination differ according to gender congruency, and to draw links between discrimination and resource acquisition for gender congruent and incongruent men and women business owners; *and*
5. To develop a resource-based theory of entrepreneurial segregation.

From these objectives arise the following research questions:

1. What is the relationship between entrepreneurial segregation and network composition?
2. What role does gender congruency play in the ability to successfully leverage the productivity of business owners' social networks?
3. Are business owners whose sex is congruent with the gender-type of their business more successful in their ability to secure business resources?
4. Are there differences between men and women in this regard?

1.5 Organisation of the thesis

The thesis is organized as follows. The next chapter provides an overview of what is known about gender segregation in business ownership. Chapter three presents a review of the literature on social networks and gender stereotyping. At appropriate points in the text, hypotheses are presented. Chapter four presents the epistemological and ontological beliefs on which the research is grounded. Chapter five outlines the research design. Analysis follows in chapter six, and discussion and conclusions in chapters seven and eight. Since women's entrepreneurship in general and in nontraditional sectors is most advanced in the United States, the US is the focus of both the desk research and the empirical investigation.

CHAPTER TWO: Gender, Entrepreneurship and Segregation

Man for the field and woman for the hearth:
Man for the sword and for the needle she:
Man with the head and woman with the heart:
Man to command and woman to obey;
All else confusion.
-- Lord Alfred Tennyson, *The Princess*, 1847, Pt. V, l. 427-431

2.1 Introduction

Gender segregation can loosely be defined as the unequal concentration of men and women in different forms of market labour. It has been investigated at practically every level of economic organization. Academics have discussed segregation within firms (Martell, Emrich and Robison-Cox 2012), occupations (Barbulescu and Bidwell 2013), industries (Campos-Soria, Marchante-Mera and Ropero-Garcia 2011), in the informal economy (Snyder 2005), and even branches (Mennerick 1975) and job ranks (Bielby and Baron 1984; Reskin 1993). Amidst this substantial body of literature, however, a notable gap can be discerned. The segregation of men and women is generally examined at the level of employment, rather than self-employment, business ownership or entrepreneurship. That entrepreneurial segregation remains so vastly understudied is a crucial oversight for, as noted in the opening chapter, there is some evidence that entrepreneurial segregation contributes to inequality in similar ways to sex segregation in employment. Accordingly, in this chapter, I review the limited research on gender segregation in entrepreneurship and discuss explanations for its emergence and pertinacity. It is helpful to precede discussion of gender and entrepreneurship with an overview of the concept of entrepreneurship; thus, the chapter opens with a brief historical overview of the topic, moving on to focus on gender more specifically. The core of the chapter reviews the literature on the causes and consequences of segregation in business ownership. The conclusion attempts to explore tentatively the implications of the existing literature for the empirical research that follows.

2.2 The concept of entrepreneurship

Most Western countries have witnessed a rise in self-employment and entrepreneurship levels in recent years (Buchmann, Kriesi and Sacchi 2009; Sappleton 2013). Concomitant with this growth has been a boost in interest in the study of entrepreneurs within the discipline of sociology (Reynolds 1991; Thornton 1999; Bygrave and Minniti 2000; Ulhøi 2005) and the emergence of entrepreneurship as a research paradigm in its own right (Carsrur, Olm and Eddy 1986). Reviewing progress to the mid 2000s, Landstrom (2005) identified four key emphases in the extant entrepreneurship research. Research derived from the Austrian School was largely concerned with identifying individual traits of entrepreneurs and understanding the entrepreneurs' role in the market. Influential theorists in this domain included Israel Kirzner and Ludwig von Mises who emphasized the importance of the entrepreneur in the movement of economies towards equilibrium (Kirzner 1973). The second major research tradition developed from the Austrian School. It was spearheaded by US-based economists Frank Knight and Joseph Schumpeter, and was largely concerned with understanding the key constituents of entrepreneurial behaviour, such as risk and innovation. This body of research was extremely influential in the development of entrepreneurship as a discipline: Schumpeter's (1934) classic *The Theory of Economic Development* is "in spite of its age, by far the most cited work about entrepreneurship, even among contemporary writers" (Ahl 2006: 599), while Knight's (1985 [1921]) *Uncertainty, Risk and Profit* is the second most frequently cited treatise on entrepreneurship (Ahl 2006).

In the 1960s, a strand of research into entrepreneurial motivations, skills and attributes grew out of psychology and the behavourial sciences (Landstrom 2005). The pioneer in this area was David McClelland (1961), but the quest to develop a profile of the 'typical' entrepreneur was taken up by many and continued well into the 1990s (Blanchflower and Oswald 1998). The fourth concern of researchers identified by Landstrom (2005) is the small and medium enterprise (SME) and its role in job creation. It is this latter body of

research which is most closely associated with the network paradigm in entrepreneurship, for networks are viewed as the key to resources and hence small business growth and survivability (Curran, Jarvis, Blackburn and Black 1993).

Drawing on these studies, one might understand entrepreneurship to be an inherently social activity, involving risk, uncertainty and innovation that contributes to job creation and economic growth (Bjerke 2007). Yet the study of entrepreneurship is complicated by the fact that in many economies there is no legal or official definition of an entrepreneur, and no single accepted definition of entrepreneurship exists in the literature (Van Praag 1999). For instance, while a definition of entrepreneurship that highlights the income generative process is popular among sociologists as well as early theorists such as Max Weber and Joseph Schumpeter, psychologists like McClelland define anyone who controls their own labour or who possesses an entrepreneurial mindset as an entrepreneur, regardless of whether that activity generates wealth (Landstrom 2005). It is not my intention to survey or contribute to this debate, for admirable reviews exist elsewhere (e.g. Van Praag 1999), and, as detailed in chapter 5, a pragmatic definition of entrepreneurship is adopted in this study.

What must be noted, however, is that regardless of the precise definition of the entrepreneur, the archetypal image or denotation is a masculine one (Ahl 2006). Prevalent depictions of the 'entrepreneur' - hero, captain, adventurer, explorer - are masculine, while the oft-described characteristics of the entrepreneur – as someone who assumes risk, is self-interested, emotionally detached and independent – corresponds closely with that of 'economic man' – the hero of neo-liberal economic ideology (Bruni et al. 2004b; Hanson 2009). In his discourse on hegemonic masculinity, R.W. Connell (2000: 52) observes that popular understandings regarding entrepreneurs are taken from "management literature, business journalism, corporate self-promotion, and from studies of local business elites". However, the practice of

entrepreneurship may differ substantially from these portrayals (Styhre 2005). Not only does the androcentric myth purported by such outlets mask the growing contribution of women to entrepreneurial practice (Lewis 2006), but also it serves to 'other' those men that do not adhere to this particular form of hegemonic masculinity (Connell 2000; Galloway 2012).

2.3 Gender segregation and entrepreneurship

In spite of the pervasiveness of the myth of entrepreneurial masculinity, since the 1970s, there has been a massive upsurge in self-employment/business ownership among women. In the United States, women now own around 40 percent of all privately held, non-agricultural businesses (American Express OPEN 2013). In 2008, women started over 400 new enterprises a day - a figure that was twice the male rate; their firms generated $1.9 trillion in sales and employed more than 13 million people (Center for Women's Business Research 2009). According to the latest available Census figures, there were, in 2008, a total of 10.1 million women-owned firms - an increase of more than 25-fold since records began in 1972 (American Express OPEN 2013). Between 1985 and 2000, the numbers of female-owned sole proprietorships grew at a faster rate than their male-owned and jointly-owned counterparts, their business receipts grew at more than twice the rate of men's, and their profits increased at an average annual rate of 6.9%, compared with a 3.9% average annual growth rate for male-owned sole traders (Lowrey 2005).

In spite of this impressive record, women-owned businesses are overwhelmingly crowded into a narrow segment of the economy, particularly in retail and services. The self-employed work that many women do – cleaning homes, caring for children, mending clothes and so on – are effectively commercial replications of the unpaid work that women perform in the home (Echavez 2000; Minniti and Arenius 2003; Cohen 2004; Lowrey 2005). These business are smaller than those owned by men (American Express OPEN 2013); they are more likely to be organized as sole traders than as larger corporations (Coleman 2002), they occupy lower status

portions of the job market, cater to local rather than global markets (Bates 2002), are generally less profitable (Miller, Besser and Riiber 2006/7; Verheul, Caree and Thurik 2009), less sustainable, and have lower levels of growth and generate lower levels of turnover than those in typically male sectors (Morris et al. 2006). The most lucrative industry segments – high technology and construction – have yielded far less to the new invasion, effectively remaining male monopolies (Parker 2010).

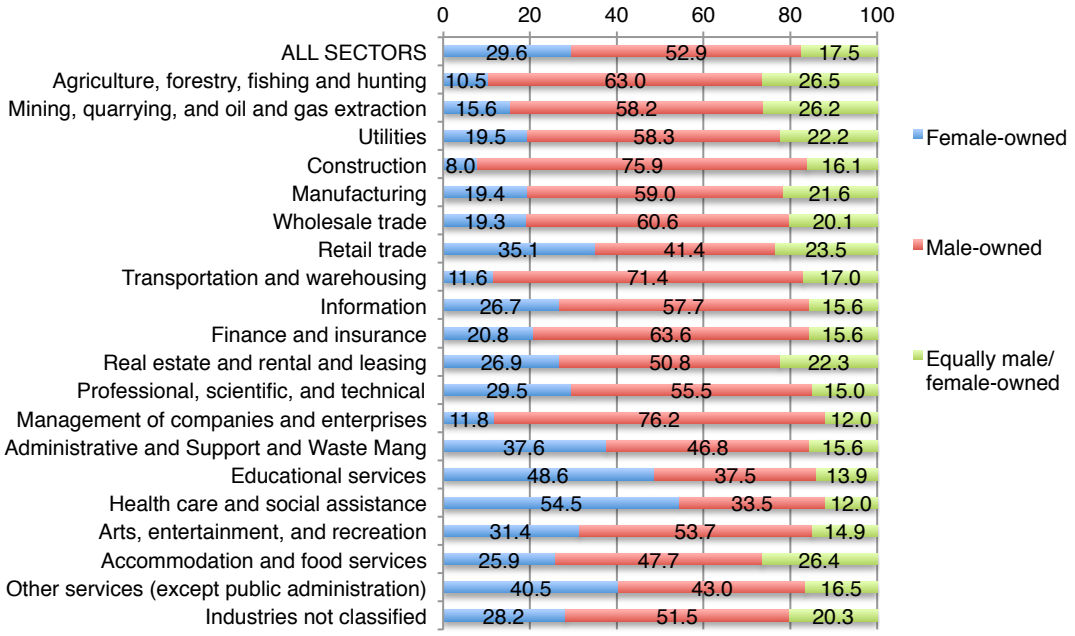
Given the differences in the size, performance and status of many women-owned firms, entrepreneurial segregation may undermine progress that has been made in women's uptake of entrepreneurship. Indeed, there is evidence that entrepreneurial segregation contributes to inequality in similar ways to sex segregation in employment (Marlow, Carter and Shaw 2008). Women earn less than men in self-employment and business ownership, with segregation making a significant contribution to earnings disparities (Hundley 2001; Lowrey 2005; Leung 2006; Lechmann and Schnabel 2012). Female-typed industries have higher rates of firm turnover (Robb 2002) and firms in sectors like manufacturing, construction and computer services have better chances of survival than those in the competitive retail and services industries (Dahlqvist, Davidsson and Wiklund 2000; Schmidt and Parker 2003; Bird and Sapp 2004). Indeed, the major industrial classification with the single greatest concentration of women-owned enterprises – personal services – is also the least profitable major industry subgroup in the US (US Census Bureau 2011a).

While the migration of women into business ownership has been rapid, progress in women's representation in senior management positions has stalled. One interpretation of these trends is that women are increasingly turning to business ownership as a way of escaping corporately imposed glass ceilings (Daniel 2004; Catalyst 2011). But that women are electing to establish firms in female-typed sectors raises the question of whether business ownership offers to women any real escape from labour market

discrimination – the ostensible message in much of the literature (Delaney 2003; Kephart and Schumacher 2005). The fact that "women's influx into small capitalism results from their movement into expanding, but highly competitive, industrial niches that are relatively unattractive to men" (Loscocco and Robinson 1991: 511) surely warrants greater research attention.

Before examining the causes of segregation, it is worthwhile assessing the degree to which business ownership is segregated. In the UK, there is no gender-disaggregated small business dataset that reports ownership by three-digit business sector[1]. In contrast, US data sources are myriad and more detailed (Fairlie and Robb 2009) and so I report American data here.

FIGURE 2.1 BUSINESS OWNERSHIP BY SEX OF OWNER AND TWO-DIGIT INDUSTRY CLASSIFICATION, 2007



Notes:

Source: US Census Bureau (2011) Survey of Business Owners 2007. Table 11. Publicly owned businesses excluded. Definitions are as follows. Female-owned businesses are those

[1] The VAT register and Inter-Departmental Business Register provide detailed data on sector

in which women own at least 51 percent of the interest, stock or equity of the business; male-owned are those in which men own at least 51 percent of the interest, stock or equity of the business and equally male-/female-owned are those in which there is a 50-percent male and 50-percent female ownership of the interest, stock or equity of the business.

Figure 2.1 shows business ownership by sex and two-digit[2] industry classification in 2007 (the latest available data). Sex segregation is quite evident. Women are overrepresented in healthcare and social assistance and educational services and underrepresented in construction and the primary sectors. Men are underrepresented in the sectors in which women are most commonly found, but in most industries, men form a majority. Importantly, the level of segregation is even more extreme when six-digit industry classifications are considered. In an analysis of the tax receipts of a national sample of sole proprietors, Loscocco and Robinson (1991) found a high degree of segregation *within* industrial sub classifications; for example, within the construction industry, women were concentrated in painting, paperhanging and decoration, and within services, they were heavily concentrated in the non-lucrative education field), and also noted the low levels of profitability of women owned enterprises. Using Statistics of Income data, Lowrey (2005) assessed the distribution of male- and female- owned sole traders across the business activities in which most small firms were engaged from the period 1985-2000. During this time period, 51.9 per cent of female and 28.4 per cent of male sole proprietorships were found in just 10 activities, of which eight are heavily sex-segregated: carpentering and floor contractors; miscellaneous specialty trade contractors, door-to-door sales, janitorial and related services to buildings (dominated by men), and beauty shops, miscellaneous personal services, other business services and child day care (dominated by women).

[2] The North American Industry Classification System (NAICS) is a hierarchical schema consisting of two- to six- digit industry classifications. The number of industries ranges from 20 two-digit industries to 1175 six-digit industries. Most analyses take place on the two-digit classification because this data is most commonly reported in Census Bureau statistics. However, as is the case with occupational segregation, segregation in business ownership becomes more extreme as the level of classification becomes more detailed (*cf* Anker 1998).

Although business ownership continues to be heavily segregated, there has been some desegregation in recent years. The latest reported figures from the Center for Women's Business Research (CWBR) show that between 1997 and 2004, the number of women-owned firms in traditionally male industries (defined by the CWBR as Agriculture, Mining, Construction, Manufacturing, Transportation/Communications and Wholesale Trade) grew by 18 percent, outpacing the 12 percent growth in the number of women-owned firms in traditional industries (Center for Women's Business Research 2005). Among the broad industrial classifications, growth was strongest in the construction sector; between 1997 and 2002, the number of women-owned construction firms grew by 35.5 percent (National Women's Business Council 2004). In 2002, Weeks (2002) calculated that women were starting businesses in nontraditional industries at a 50.2 percent growth rate compared to a 35.6 percent growth in traditional industries. Additionally, the numbers of gender-atypical sole proprietorships grew fastest between 1985 and 2000. For example, the number of female carpentering and floor contractors grew 31.8 percent annually (compared to just 1.66 percent for those owned by men), while male-owned child day care businesses grew 30 percent annually (compared to an annual rate of 3.13 percent for female businesses in that industry) (Lowrey 2005).

While these figures seem impressive, some caveats are necessary. Firstly, it should be noted that the rapid growth in women-owned nontraditional firms has been from a very low base. Secondly, while the absolute *number* of women-owned nontraditional businesses has increased, the *proportion* of businesses in male-dominated industries that are owned by women remains low. For example, while the number of women-owned construction firms leapt from 57,805 in 1982 (US Census Bureau 1985) to 173,631 in 1992 (US Census Bureau 1995) and then to 268,809 in 2007 (US Census Bureau 2011b), the increase in the proportion of women owned construction firms was more modest: women-owned construction firms comprised 4.3 percent of the total in 1982, 10 percent in 1992, and a fall to 8 percent in 2007. So, while

there has been some desegregation, these trends should not be overstated. The fact is, business ownership remains heavily segregated.

2.3.1 Biological and socialization explanations for gender segregation

What then, are the drivers of gender segregation in entrepreneurship? Before reviewing the entrepreneurial literature, it is worthwhile outlining the two key arguments that have been advanced in the occupational literature to account for segregation in employment: biological determinism and sex role socialization.

Biological determinists view men and women as qualitatively different by virtue of their anatomical, hormonal and/or physiological differences (Holmes 2007). Their theories imply that sex segregation is an inevitable consequence of biological dimorphism. Because these beliefs have fallen out of favour in recent times, studies extolling these ideas tend to be older (e.g. Robinson, Bryan and Canaday 1978) The hormone testosterone features heavily in this literature because its primary behavioural and cognitive correlates – dominance, aggression, sensation seeking and libido – are expected to make individuals better suited to certain occupations (Dabbs, de La Rue and Williams 1990). Dabbs et al (1990) examined three all-male samples and recorded significantly higher levels of testosterone in actors and footballers over unemployed men, ministers, salesmen, firemen, professors and doctors; actors and comedians over ministers and missionaries, and entertainers compared to ministers. Schindler (1979) compared the salivary testosterone of 64 women and found levels in lawyers to be higher than levels in athletes, nurses and teachers. Purifoy and Koopmans (1979), analyzing the serum testosterone of 55 women, found higher levels in those who were students, professionals or technical workers, compared to those in the more traditional fields of clerical worker or housewife. The implication is that sex segregation occurs because women generally have lower levels of testosterone than men,

which drives them to jobs involving “subordination and service… [rather than jobs involving] flamboyance, initiative and celebrity” (Dabbs et al 1990: 1264).

More currently, the most vocal proponent of the biological perspective is Simon Baron-Cohen (2007, 2012). Baron-Cohen contends that, as a consequence of genetic factors and/or differential prenatal testosterone levels, there exist female and male brain ‘types’. Differences in brain functionality derive from differing relative proportions of *systematizing* and *empathizing* drives. *Systemizing* is an inductive process that allows human beings to understand and predict natural laws. *Empathizing*, on the other hand, is a way of understanding and predicting the *social* world. The two drives are direct opposites of each other and depend on separate, independent regions in the brain. Baron-Cohen argues that generally, the female brain spontaneously supports empathizing to a greater extent than systematizing, whereas the male brain exhibits a stronger drive to systematize.

Baron-Cohen (2007) draws on an extensive body of scientific literature to support his hypothesis; for example the observation that 1-day-old baby boys look longer at a mechanical mobile than a person’s face, whereas 1-day-old girls demonstrate the opposing tendency. His most widely cited piece of evidence, however, is that about four times as many males as females have autism. People with autism, or a so-called ‘extreme male brain’ show markedly impaired empathizing and superior systematizing – they are ‘mind-blind’. Baron-Cohen points to evidence that autistic people typically demonstrate considerable achievement in maths, chess and other scientific, mechanical or rule-based disciplines, and that there is a higher rate of autism in the families of those talented in maths, science and engineering, compared to those talented in the humanities (indicating that the extreme male cognitive style is inherited). In summing up his research, Baron-Cohen (2007: 92) concludes that “we should not expect the sex ratio in occupations such as maths or physics will ever be 50-50 if we leave the workplace to reflect simply the numbers of applicants of each sex that are drawn to such fields”.

Turning to the economic literature, Croson and Gneezy (2009) reviewed the psychology and economic literature on game theoretic experiments and some real market data to test their hypothesis that the gender pay gap could be explained by gender differences in risk taking, social preferences and reaction to competition. Their review found that women are more risk-averse and less competitive than men. The evidence also suggested that women are more altruistic, cooperative, reciprocal and inequality-averse, but that women's tendency towards *other-regarding* behaviour is highly sensitive to social conditions. Because sex differences were found in children, they concluded that this is an evolutionary rather than socialized difference. However, they also noted that sex differences are greatly reduced when samples are restricted to subpopulations of managers and professionals (see also Masters and Meier 1988 who concluded that female entrepreneurs have the same risk taking propensity as their male counterparts).

If entrepreneurship in male-dominated fields requires riskier, more competitive behaviour and more cut-throat decision making than entrepreneurship in traditionally female fields, this research would imply that segregation is a consequence of women's preferences for activities that are lower in risk and competition and more socially virtuous. However, despite the differences in the size and performance of women-controlled and men-controlled firms, which is itself a consequence of segregation (Leung 2006; Lechmann and Schnabel 2012) there is no clear evidence that businesses in industries dominated by men require different behaviours than the businesses that are typically owned by women. These findings do imply that personality profiles are similar among individuals who self-select into certain professions (Malach-Pines and Schwartz 2008). This is lent support by O'Gorman and Aylward's (2007) descriptions of two traditional women business owners and two women owners of high technology firms in Ireland. The nontraditional entrepreneurs were older, single with no children, more highly qualified with technical backgrounds and had more highly educated parents. Additionally, in self-

descriptions of personality, the traditional women chose 'feminine' characteristics (customer-focused, quality-oriented and sympathetic) while the nontraditional women selected 'masculine' characteristics (independent, aggressive, autonomous). However, the tiny sample means the results of study must be treated with caution.

In general, however, evidence from the occupational literature suggests that the role of biology in determining job choice is likely to be very small, and there is little reason to believe that entrepreneurship is any different. That occupational 'choices' are known to be subject to considerable spatiotemporal variation provides indications that sex segregation in employment is neither natural nor inevitable (Jacobs 1989, 1990, 1993). Some tasks that are female in one society are constructed as male in others. For example, approximately one half of all nurses in Senegal and Tunisia are male and one half of maids and housekeepers in Angola are male (Anker 1998). In the West, cloth production switched from being female-dominated to a male-dominated and back to female-dominated work over the course of the Industrial Revolution (Bradley 1993; Reskin 1993). Today, the job of schoolteacher might be constructed as 'female' but in 19th century rural America, when there were few alternative opportunities available to men, school teaching was a typical and lucrative male occupation. In 1879, only 8 percent of teachers in urban Washington, D.C. were male, but in neighbouring rural Virginia, men comprised one-third of teachers (Strober and Tyack 1980). The role of women in manual trades during wartime is well documented (Brown 1992). But records also show that in Britain, from the 17th to the 19th century, around one-third of trade apprentices were women (Clarke and Wall 2004). And, in the early 19th century, when around 80 percent of the U.S. workforce were self-employed, women were engaged in a diverse range of activities that might now be considered "non-traditional" – everything from manufacturing soap, shoes and candles to working as traders, printers and tavern keepers (Davies-Netzley 2000). Given this evidence, biological sex differences seem inadequate in accounting for entrepreneurial segregation.

In a directly contrasting view, socialization theorists argue that segregation arises as a result of gender stereotypes and sex-role socialization. Stereotypes are widely held, cognitively inexpensive ways of making sense of the social world and they are both descriptive and prescriptive (Heilman 2001). According to the prevailing gender stereotypes, women are (the descriptive element) and should be (the prescriptive element) caring, nurturing, risk-averse and family-focused (Blau et al. 2006; Holmes 2007; Ivy and Backlund 2008). Men, on the other hand, are and should be competitive, dominant, masterful and reward-focused. As children and adolescents, individuals are socialized in ways that meet the stereotype that fits their biological sex; the process is reinforced throughout adulthood by peers, the media and educational and in occupational experiences (Carli 2001; Rudman and Glick 2001; Sczesny, Bosak and Diekman 2008). Females learn the care-giving and expressive skills that are deemed necessary for motherhood and wifely duties – feminine qualities of obedience, deference, patience and nurturance; males become adapted to the exigencies of instrumental labor, developing masculine traits of achievement, self-reliance and stoicism (Gadassi and Gati 2009). For example, young girls are still given toy dolls whilst young boys typically play with weapons or trucks (Rommes, Bos and Oude Geerdink 2011). Parents – especially mothers – are believed to be the primary agents of socialization, and socialization is reinforced in households in which the parents themselves engage in traditional gender roles (Wardy 2014).

Theorists argue that socialization affects occupational outcomes in three ways. Firstly, it makes women more fearful or less confident than men, directing them in disproportionate numbers into occupations with limited levels of responsibility and authority. Chaganti (1986) and Gregory (1990), for instance, have suggested that women establish firms in the service industries because sex-role socialization has deprived them of the vision and ability to lead, manage and operate larger and more profitable firms in male-dominated

sectors. Hisrich and Brush (1986: 24) suggested that "because of the way they are socialized, women are often unaccustomed to taking risks, so that by doing what they know best, they can eliminate many of the reasons for failure". All in all, the general argument is that because of socialization, women pursue conservative operating policies, have difficulty delegating, pursue non-pecuniary objectives, prefer to operate in locally-oriented markets, are cautious and risk-averse, and follow an intuitive, person-oriented style of leadership that is more commensurate with firms in low-growth sectors.

Secondly, there are social role theorists who argue that socialization directly impacts on workers' skills, self-beliefs and personality traits so that attributes are not distributed evenly amongst men and women, and these in turn generate sex differences in behaviour (for example, women who are more person-oriented and view themselves as less mathematically able are likely to avoid scientific pursuits) (Wood and Rhodes 1992; Whiston 1993). Cejka and Eagly (1999) analysed 189 subjects' ideas about the demands and requisites for success in various jobs. The research revealed that success in male- and female-dominated occupations was considered highly related to requiring stereotypically male or female personality, physical and cognitive traits. Success in female-dominated occupations was associated with being gentle, helpful, social, pretty and petite, whereas success in male-dominated jobs was associated with being competitive, dominant, aggressive, muscular and physically vigorous. More recently, Gupta *et al* (2008) confirmed the link between gender stereotypes and intentions to pursue entrepreneurship among business students in the US, India and Turkey.

Thirdly, socialization translates into segregation by promoting the internalization of traditional notions of appropriate activities for men and women so that individuals form attachments to occupations that conform to these stereotypes (Gadassi and Gati 2009). *Cognitive dissonance theory* suggests that individuals are attracted to work that they consider requires characteristics similar to those they possess (Glick, Wilk and Perreault 1995;

Eccles, Barber and Jozefowicz 1999), epitomized by Cable and Judge's (Cable and Judge 1996: 294) dictum that "job seekers prefer organizations that have the same 'personality' as they do". There is plenty of empirical support for the theory, even *within* occupations. For example, when men began entering nursing they soon became concentrated in areas that require physical strength, such as mental health nursing and emergency rooms (Segal 1962; Simpson 2004), where women are found in paediatrics, obstetrics/gynecology and family practice. In legal practice, men outnumber women in the most prestigious and high visibility areas (such as litigation), and women tend to work in more female-friendly areas, such as family law (Furr 2002; Gorman 2005).

Following these arguments, it could be reasoned that socialization leads women and men entrepreneurs to adhere to gender stereotypes when selecting a business industry. Moreover, since existing women business owners can act as role models or mentors to potential newcomers in the crucial start up phase, the crowding of into female-typed fields is likely to have a multiplier effect. As concluded by Gupta et al (2009: 406), "men and women seem to choose to participate in a system of self-imposed occupational segregation in entrepreneurship due to insidious and complex processes rooted in culturally produced and socially learned stereotypes". In other words, gender stereotypes about the proper roles for men and women are reflected in sex segregation in business. This proposition is illustrated in table 2.1, which links common stereotypes regarding women (taken from a comprehensive, multi-country study of gender stereotypes) with US statistics on female self-employment. Just as in employment (Cejka and Eagly 1999), the occupations in which self-employed women predominate seem to loosely correspond with female stereotypical characteristics.

TABLE 2.1: COMMON STEREOTYPED CHARACTERISTICS OF WOMEN AND EFFECT ON SEGREGATION

Stereotype	Effect on segregation	Examples of business sectors (% female, US)
Caring nature	Qualifies women for occupations where others are cared for, such as children, the ill, older people	Childcare workers (97.7%), Speech therapists (89%)
Skill and experience at household-related work	Qualifies women for work that is done in the home	Cooks (53.5%); waiters and waitresses (85.7%)
Greater manual dexterity (smaller, nimble fingers)	Qualifies women for work where finger dexterity is important	Sewing machine operators (76.8%); secretaries (92.3%)
Greater honesty	Qualifies women for work where money is handled or trust is important	Bookkeeping, accounting and auditing clerks (91.2%)
Values physical appearance	Qualifies women for work where physical appearance helps to attract or please customers	Hairdressers, Hairstylists and cosmetologists (92.4%)
Less need for income	Characteristics driving women into low-yield sectors of the economy	Community and social services (82.6%); Healthcare support occupations (88.1%)
Greater interest in working at home	Qualifies women for business where work can be undertaken easily at home	Artists (60.5%); Writers and authors (56%)
Less physical (muscular) strength	Disqualifies women from sectors requiring physical effort	Construction labourers (2.1%); brick masons, block masons and stonemasons (0%)
Less able to do science and maths	Disqualifies women from sectors where high levels of match or science are required	Computer and mathematical occupations (21.4%)
Less willing to travel	Disqualifies women from sectors where travel is required	Tour and travel guides (33.3%)
Less willing to face physical danger and use physical force	Disqualifies women from sectors where physical danger is relatively great	Protective service occupations (20%)

Notes: Sources, Anker (1998), 2008 US Current Population Survey (table 7), self-employed workers only. In 2008, women comprised 36.5% of self-employed workers.

2.4 Gender and entrepreneurship

In the past three decades there has been an increase in studies utilizing gender as a lens through which issues impacting on women's participation in business ownership are examined and understood (Brush, Bruin and Welter 2009). This corpus of research is now reviewed, with attention being directed to those papers that illuminate the relative influence of social, cultural, and material factors on *gendered* entrepreneurial start-up. Following the Bourdieuian realist stance adopted throughout this thesis (see chapter 4), Bourdieu's (1986) four forms of capital – symbolic, economic, cultural and social - are employed as a broad framework to organise the ensuing discussion.

2.4.1 Symbolic capital

For Bourdieu (1998), symbolic capital is a form of legitimate competence or social power. Within a particular domain or field of practice, individuals compete for symbolic capital and legitimacy or social approval is usually conferred by conforming to the prevailing characterizations of legitimacy that are dominant in that field of practice (McCall 1992). This highlights the difficulty faced by men and women in the pursuit of non-traditional activities. As Hanson and Blake (2009: 138-9) point out, since "practices are performed by people who have a gender, class and ethnic identification, for example, these aspects of social identity become wrapped up in the process of the legitimization of a particular activity or practice". The degree of fit between the gender of the entrepreneur and the gender-type of the business and sector impacts legitimacy and may therefore be crucial in determining motivation to enter a particular field of practice, since individuals draw on notions of legitimacy in their sentient and insentient strategic actions (Elam 2008).

These notions of legitimacy are manifested in *gender stereotypes,* which may impact entrepreneurs in two related ways. Firstly, men radically outnumber women in high-growth, high technology, manufacturing and construction industries (Klapper and Parker 2010; Marlow and McAdam 2012b). The fact

that some business sectors are dominated by either women or men means that these industries become characterized as either ‘feminine’ or ‘masculine’ (Henry, Baillie and Treanor 2010; Sweida and Reichard 2013). Secondly, gender stereotypes both mirror and impact on differences between women and men in domains that are perceived as achievement focused, such as entrepreneurship (DeMartino, Barbato and Jacques 2006; Gupta et al. 2008; Koenig, Eagly, Mitchell and Ristikari 2011). Entrepreneurship, in general, is assumed to be a masculine endeavor: a recent report by the Global Entrepreneurship Monitor (GEM) Consortium shows that women entrepreneurs are outnumbered by men in almost all of the 67 economies that provide GEM data (Kelley, Brush, Greene and Litovsky 2012). The expectation that women do not undertake entrepreneurship, coupled with the observed segregation of men and women business owners means that “women considering entrepreneurship, like leadership, must contend with dual gender stereotypes: 1. The embedded masculine stereotype of specific industries; and 2. The overarching masculine stereotype of entrepreneurship” (Sweida and Reichard 2013: 300).

One might expect that the increasing participation of women in business ownership may be undermining gender-linked definitions of legitimacy in entrepreneurship (Sappleton 2009). Yet, the considerable corpus of research concerned with comparing the motivations, personalities, behaviors and psychology of women and men entrepreneurs has not expressly set out to uncover why women and men are attracted to certain sectors, and what precipitates the motivations of those that disrupt the status quo. Generally, research reveals that women and men express similar start-up motivations specifically, the need to achieve; a desire for independence; or “being one’s own boss”; job satisfaction, economic necessity or disenchantment with alternative opportunities (Menzies, Diochon and Gasse 2004; Kelley et al. 2012; Jayawarna, Rouse and Kitching 2013).

Only a few papers have explicitly addressed the factors that drive women into, and deter them from business ownership in male-dominated sectors. In a brief magazine article, Culotta (1996) identified three factors that spur women scientists and engineers to become self-employed: self-employment was a means of escaping glass ceilings, it allowed women to gain control over work schedules, and male-typed education had nurtured an entrepreneurial spirit. To illustrate this, Culotta quotes an interviewee: "when you're a woman who goes through high-tech education, you're not doing what the rest of the world told you to. So, you're more likely to want to do things your own way… When you buck systems all along, you get conditioned to think, 'Well, if I'm going to work this hard, I'm going to work for myself" (*ibid*: 406). In another magazine article, Coolidge (1998) also speculated that the growth in the number of women-owned nontraditional firms is linked to the inability of high performing women to crack corporate glass ceilings. She also provided some anecdotal evidence that nontraditional women have limited industry-related experience, noting that women are more likely than men to start a business in a sector unrelated to their experience in employment.

Chell's (2002) UK-based literature review identified a number of factors deterring women from science enterprise. Some of the causes she identified were: the higher start-up costs in manufacturing, engineering and construction than in service sector enterprises; the difficulties in balancing this type of work with domestic responsibilities; the incommensurability of part-time work and high performing businesses, and; lack of external sources of business support. She noted that trends show a growing number of girls participating in science at school, but a continuing culture about what is appropriate work for men and women creates a 'leaky pipeline' that prevents them from applying this knowledge to the world of work.

In contrast, Anna *et al* (2000) investigated individual-level differences between women business owners of construction, high-technology and manufacturing firms, and women operating retail concerns or service enterprises in Utah and

Illinois *(n*=170). They too reported differences between the two groups of women. Traditional women reported being 'pulled' into business ownership, whereas nontraditionals had generally been 'pushed' into entrepreneurship because of discontent with their previous career or a change in their family situation. Nontraditional women had greater pecuniary expectations; their businesses also tended to be larger and experienced faster growth. However, these women also perceived less financial support and described frustration in seeking funding from financial institutions. This research had earlier been presented as a conference paper (Engelbrecht, Chandler and Jansen 1996). In this paper, the authors also reported that financial support was higher for women setting up firms in traditional industries, raising the question of how women in nontraditional industries are able to overcome the difficulties associated with reduced support to achieve such high levels of success.

Based on in-depth interviews with 15 male and 13 female Dutch owners of real estate firms (according to the authors, in the Netherlands, real estate is a highly masculinized industry), Verheul *et al* (2002) concluded that women were pushed into entrepreneurship, whereas men were pulled, but both sexes sought intrinsic goals, such as being one's own boss. Contrary to the general literature on female entrepreneurship, this study found that women had more general labour market and industry experience than their male counterparts, although men were more likely to have had prior experience running a business. Compared to men, women were less likely to pursue growth, more likely to hire other women and, they tended to use a more participative, people-based leadership style and made less use of formal communication channels in relationships with subordinates.

More recently, drawing on Panel Study of Entrepreneurial Dynamics II data, BarNir (2012) explored the role played by gender in the establishment of 'technologically innovative' and 'technologically traditional' ventures. The data suggested that men pursue technologically innovative businesses for self-realization reasons, while women are drawn to more traditional business

formats as these offer better promise and less risk in terms of employment prospects and income generation. In summarizing the implications for entrepreneurial segregation, the author concludes, “the fact that a reason to start such ventures is associated with the perception that such ventures offer self-realization opportunities, and that this reason is characteristic of men and not women, may explain the predominance of men entrepreneurs among high performance and high growth firms” (BarNir 2012: 412).

There is evidence that women’s domestic and caregiving roles (Hochschild 2003 calculated that women work an extra month of 24-hours days over a year than men do) leads them to seek employment which requires lower inputs of time or enables control over scheduling or work location (Walker and Webster 2004; Morris et al. 2006; Strohmeyer and Tonoyan 2007; Walker and Webster 2007; Adkins, Samaras, Gilfillan and McWee 2013), even if this turns out to be an unfulfilled fantasy (Gurley-Calvez, Biehl and Harper 2009; Gimenez-Nadal, Molina and Ortega 2012). Indeed, many women enter self-employment in the pursuit of control over their schedules (DeMartino et al. 2006), particularly single mothers and those with less family support (Orhan and Scott 2001). For instance, Boden Jr. (1999) showed that women with young children that switched from waged to self-employment significantly reduced their working hours and weeks thereafter. Many other women business owners choose to remain childless or wait until their children are grown before embarking on business ownership (Shelton 2006; O'Gorman and Aylward 2007; Duberley and Carrigan 2013; Legault and Chasserio 2013) but others operate home-based, part-time firms that are generally irreconcilable with large-scale, growth-oriented firms (Walker and Webster 2004; Thompson, Jones-Evans and Kwong 2009). It is notable that domestic factors rarely contribute to men’s career decisions in the same way (McGowan, Redeker, Cooper and Greenan 2012; Ekinsmyth 2013).

Frome et al (2008) followed a cohort of young Michigan women who explicitly aspired to male-dominated occupations when they graduated from high

school over a period of seven years. In regression analyses, the strongest predictors of maintaining a male-dominated aspiration over the period was a higher self-concept of ability in mathematics and a lower desire for a family friendly occupation. Those who ended up in female-typed work expressed a lower willingness to subscribe to the time demands of male-typed work. Extrapolating these findings, it could be speculated that women business owners start manageable 'lifestyle' enterprises in female-typed sectors because they offer greater levels of flexibility than large-scale operations in male-typed, high-growth industries. There is already evidence from European data that both women and men self-employed workers in women-dominated sectors (industries comprised of at least 65 percent women), work significantly fewer weekly hours than women and men in male-dominated industries (Sappleton 2009).

Empiricists have also studied discrimination against women nontraditional entrepreneurs. Chesser's (1998) comparison of the networks of white women and minority business owners in construction and business consulting in Texas found that women in construction, particularly those that were also mothers, often suffered with credibility problems and had to rely on the contacts of key men they hired in order to locate instrumental resources. A doctoral thesis comparing women entrepreneurs in construction in the USA and South Africa reached similar conclusions (Verwey 2005).

Coyle and Flannery (2005) interviewed 12 women owners of firms in male-typed sectors (agriculture, manufacturing, auto glass repair, construction and ICT) in Pennsylvania. They reported that these women encountered unique barriers that negatively affected their relationships with employees, clients and business contacts, and their own expectations for success. Their authority, credibility and legitimacy was regularly challenged, even by their own employees; they experienced difficulty accessing funding and formalized networks, they faced greater levels of gender stereotyping and therefore became acutely aware of their gendered positions within their industries.

There was a good deal of evidence of discrimination, and the authors suggested that this was related to the way that business was drummed up: through word of mouth and insider networks from which these women were excluded. A comment from one interviewee is illustrative: “People do business with people they have relationships with …Often it’s a network that women and minorities are just not included in. And so it takes twice as much effort and work to get past that. It really does. You have to be better at what you do because if you’re equal it’s [the work] going to go to someone else”. Some women in that study also reported encountering flirting, sexual innuendos and inappropriate touching from male clients. Finally, the authors concluded that it was the women based in the most densely male-dominated fields that experienced the greatest number of gender-related barriers.

To summarize, legitimacy or symbolic capital is a valuable trait for entrepreneurs seeking to land resources for a new or existing enterprise. As indicated by the gender stereotyping literature, individuals pursuing nontraditional activities lack legitimacy because their physical sex does not align with the gender identification of their undertakings. The entrepreneurial literature adds that, for women at least, the ability to obtain this legitimacy is seriously hindered by factors that are also inherently gendered, such as parental role expectations. This highlights the complex interrelationship of the drivers, antecedents, and outcomes associated with the gendering of entrepreneurial roles.

2.4.2 Economic capital

Economic capital refers to property holdings, the means of production, cash and other forms of wealth. Given that business start-up, continuance and growth is deemed to be link to acquisition of financial resources, access to financial capital has been perhaps the primary concern of researchers studying entrepreneurial start-up (Kim, Aldrich and Keister 2006; Carreira and Silva 2010; Nanda 2011) and especially the gender gap in that respect

(Watson 2009; Sena, Scott and Roper 2012). Many researchers have presented copious evidence of perceived discrimination against women entrepreneurs by banks, venture capitalists and other financiers (Verheul and Thurik 2001; Brush, Carter, Greene, Hart and Gatewood 2002; Alsos, Isaksen and Ljunggren 2005; McClelland et al. 2005; Muravyev et al. 2009; Wu and Chua 2012; Gicheva and Link 2013). However, there is far from a consensus in the literature; plenty other studies report no evidence of a gender disadvantage (Haines et al. 1999; Coleman 2002; Mitchell and Pearce 2005; Orser, Riding and Manley 2006).

The debate may be reconciled by acknowledging the role of industry. For instance, capital requirements for business start-up differ by industry. Firms in manufacturing and high-technology have high initial capital requirements in order to finance physical materials and facilities, and to cover initial losses because they are faced with long lead times in developing and bringing products to market (Hogan and Hutson 2011). In contrast, service-oriented firms have more limited requirements in terms of facilities, equipment and inventory, and since production and consumption often coincide, costs can be recouped almost immediately. This means that it is often easier to start firms in the service industries using just bootstrapping strategies or personal savings (Carter, Brush, Greene, Gatewood and Hart 2003; Brush et al. 2004; Van Auken and Neely 2010).

Investigations into the determinants of entrepreneurial entry do find that personal wealth or income impacts on entrepreneurs' choice of choice (Bates 1995; Lofstrom, Bates and Parker In Press). Using longitudinal data from the 1984 U.S. Census Bureau's Survey of Income and Program Participation (SIPP), Bates (1995) found empirical evidence that financial capital (measured by levels of household wealth) is relatively unimportant for self-employed entry into the skilled services, but predicts entry into the manufacturing and wholesale sectors. Lack of wealth was found to be less of a barrier to entry "when the line of self-employment being entered generates

very low levels of profits" (Bates 1995: 1440). More recent manipulations of the 1996 and 2001 waves of SIPP revealed that women are disproportionately found among the entrants to low-barrier industries (those intensive in neither owner skills nor financial capital, such as personal services, food services retail, repair services, and child-care services) (Lofstrom et al. In Press).

Gender segregation in employment is perhaps the chief cause of the gender pay gap (Hellerstein, Neumark and McInerney 2007; Kimmel 2008) so, it is little wonder that women business owners' personal income is significantly lower than men's prior to start up (Driga and Jimenez 2010). Women are also far less likely to have been employed in the period immediately prior to start-up and more likely to have been working part-time, on a temporary contract or to have been economically inactive (Borooah, Collins, Hart and McNabb 1997). It could thus be surmised that the lower income that results from these experience constrains women to enter sectors in which high initial capital endowments are unnecessary. Thus, for women, "the choice of business can be seen in terms of high motivation to immediate independence tempered by economic rationality rather than a conscious desire to operate a 'female-type' business" (Watkins and Watkins 1984: 286). In other words, structural factors that process women through highly gendered educational and vocational pathways, also limit their income with residual effects on self-employment choices and opportunities.

To summarise, the extant entrepreneurial literature does seem to imply that economic differences between men and women impact their entrepreneurial choices either directly or indirectly. Yet, as social capital theory suggests, there is a complex interplay between financial and other forms of capital. While Bourdieu notes that economic capital is "the dominant principle of domination" in capitalist society (Bourdieu 1979 [1984]: 125), economic rewards are tied very closely to possession of the other forms of capital. Individuals who do not have financial capital may acquire it through their networks (social capital); to obtain it, they must have legitimacy (symbolic

capital) and once they have it, they must know what to do with it (cultural capital).

2.4.3 Cultural capital

Cultural capital can broadly be thought of as *know-how*. More specifically, Bourdieu (1980) identified two forms of cultural capital with particular relevance to entrepreneurship – habitus (loosely defined as worldview or dispositions) and institutionalized cultural capital (loosely defined as experience and education) (De Clercq and Voronov 2009). Bourdieu (1979 [1984]) considered education as a great social equalizer and devoted much of his career to elucidating the role of educational experiences in transmitting cultural capital and reproducing existing social structures. Bourdieu argued that institutionalized educational experiences served a dual purpose: to transmit the ideology and practical knowledge that influence the habitus, and to imbue within individuals the legitimate competence that is recognized in society as symbolic capital. Thus, education should be thought of as a preparatory experience in which entrepreneurs learn and hone the knowledge and skills that are useful for start-up (Anderson and Miller 2003).

Research does suggest that education positively affects entrepreneurial entry (Aldrich, Carter and Ruef 2002; Shane 2003; Kim et al. 2006; Martínez, Levie, Kelley, Sæmundsson and Schøtt 2008) – although different levels of education are associated with entry to different industries (Lofstrom et al. In Press). Education is thought to prepare individuals for business start-up because the cognitive skills that emerge through education enable individuals to better strategize which helps them to transform ideas into opportunities (Shane 2003). In terms of gender, Global Entrepreneurship Monitor data from the United States suggests that there are few differences between men and women entrepreneurs in relation to educational achievements (Menzies et al. 2004; Robichaud, Zinger and LeBrasseur 2007; Kelley et al. 2012). There continue, however, to be differences in the *type* of education undertaken by

women and men. There is a marked difference between the uptake and performance of teenage boys and girls in maths and the sciences (OECD 2009). Young people still choose sex-typed disciplines at undergraduate level, with young women opting for courses in education, health, psychology and the liberal arts, and young men selecting engineering, sciences and computing (National Center for Education Statistics 2009). Although there has certainly been some desegregation over the past four decades, it has not been across the board. For example, while the number of women receiving MBAs has been rising steadily (Brush et al. 2004) between 1992 and 2002, there was no change in the proportion of applicants to US business schools that were women (Heffernan 2002).

There are also sharp divisions between the types of occupation that men and women undertake (Charles and Grusky 2004; Weeden 2004). Horizontal segregation in employment can have a considerable impact on business sector choice since individuals are apt to establish firms similar to organizations with which they have some familiarity (Hanson and Blake 2005). For example, women are overrepresented in retailing at the employee level (Schmidt and Parker 2003); this is also one area in which women have entered self-employment and business ownership in larger than average numbers (Loscocco et al. 2009). Similarly, national GEM data shows that female entrepreneurial rates are positively correlated to the number of women working in services, suggesting that the service sector is a fertile source of business opportunities for women (Minniti and Arenius 2003). Individuals are more likely to exploit opportunities if they have useful knowledge from previous employment (Cooper, Woo and Dunkelberg 1989). Similarity with past operations is even deemed to contribute to likelihood of firm survival (Brüderl and Rolf 1992; Srinvasan, Woo and Cooper 1994; Brüderl and Preisendorfer 1998), productivity (Verheul, Caree et al. 2009) and levels of entrepreneurial success (Rickne 2001; Brush et al. 2004). It has been cautioned that “to be effective, entrepreneurs must have an intimate knowledge of the industry in which an organization operates and of the

organization itself… potential entrepreneurs should not enter businesses in which they lack experience" (Smith and Gannon 1987: 19-20)[3]. Cately and Hamilton (1998: 76) conjectured that the level of match between a business owner's business and previous work experience impacts on self-confidence, and it is women's lack of managerial experience and overrepresentation in person-oriented roles that "cause women to believe that they have weak financial skills; average marketing and operating skills; and that their strengths are in idea generation and dealing with people". Additionally, there is evidence that financiers prefer to invest in ventures led by founders with prior industry experience (Hsu 2007).

Vertical segregation – that is, the concentration of women into the lower levels of job hierarchies – may also be linked to segregation in business ownership. Management roles are 'incubatory experiences' in which business owners refine their financial, marketing, operational, networking and technical skills (Politis 2005). For example, in 2004, CWBR reported that almost two-thirds of women who began a firm in the previous decade had learned the ropes as senior managers of top firms (Fisher 2004). But women tend to have less experience in management than men, particularly at the top tiers (Cowling and Taylor 2001). In 2008, just 15.2 percent of directorships of Fortune 500 companies were held by women (3.2 percent were held by women from ethnic minorities) (Catalyst 2011). Women seem to gain managerial experience in sex segregated fields – Catalyst (2011) also reports that women's representation on Fortune 500 directorships is much higher among firms specializing in toys and cosmetics[4]. Additionally, men tend to have greater

[3] Actually, evidence linking founders' similarity of experience with business outcomes is fairly mixed. Industry tenure may increase an entrepreneurs' opportunity recognition when starting a firm in a similar field, but it may also inhibit innovation and retard organizational learning because accepted wisdoms and ideas may need to be unlearned (readers are directed to Reuber, A. R. and E. Fischer (1999). "Understanding the Consequences of Founders' Experience." Journal of Small Business Management **37**(2): 30-45. for a review).

[4] This link between occupational and entrepreneurial sector is likely to be strengthened in sectors with well-entrenched levels of vertical segregation (e.g. accountancy, Marlow and Carter 2003) or relatively flat organizational structures, like the beauty industry or childcare (Cameron et al 1999). Ambitious workers in these sectors have few opportunities for upward mobility; thus, they have an increased incentive to start their own firm. Indeed, the fastest

levels of entrepreneurial experience than women (Fisher 2004); for example, it is not unusual for them to own more than one business simultaneously (Ucbasaran, Westhead and Wright 2006). This is an important observation because "it is generally easier to start a second, third or fourth venture than it is to start the first one. The need for entrepreneurial experience increases as the complexity of the venture increases" (Hisrich 1990: 214).

Together, these studies suggest that the devices (be they socialized or biological) that draw women into liberal arts education, caring occupations, subordinate employment positions and careers interrupted by domestic obligations may all contribute to the lack of development of appropriate human capital for business ownership in fields like high technology or construction. This is an important point because "the more specific the human capital is to the nature of the entrepreneurial venture, the higher the likelihood of success" (Carter and Allen 1997: 213). This explains why entrepreneurial, rather than general work experience has been found to exert larger effects on business performance (Stuart and Abetti 1990).

In summary, cultural capital differs between men and women. These observations are important for any discussion of gendered entrepreneurship because the value of education and experience as social equalizers is closely linked to the type of knowledge and experience acquired, and to the sectors in which that knowledge might be employed (Elam 2008). The gendered acquisition of work-related skills and abilities gives rise to different approaches to entrepreneurship that manifest themselves in entrepreneurial segregation. Gender stereotypes drive women and men into segregated educational experiences, occupations and careers that ultimately reproduce existing structural divisions. Cultural capital understood as the habitus is held in the psyche, and influences individuals' worldviews, preferences and dispositions (Bourdieu 1979 [1984]). In this sense, habitus could be considered to be a

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levels of growth in nontraditional entrepreneurship are found in such sectors: childcare (for men) and contracting (for women) are two examples (Lowrey 2005).

type of resource that constrains and shapes individual choices in a similar way to institutionalized cultural capital. In that respect, gender stereotypes should be considered as a form of cultural capital. Gendered definitions of legitimacy are imbued in the habitus, transmitted through educational and occupational institutions and are reproduced through interplay with the other forms of capital (Bourdieu 1986).

2.4.4 Social capital

The fourth form of capital identified by Bourdieu (1986) is social capital. A fuller discussion of the concept follows in chapter 3, but it useful to discuss here briefly the relevance for segregation in entrepreneurship. Social capital can be thought of the resources that are accessible to entrepreneurs through their social networks – the individuals they know, or have access to (Stam, Arzlanian and Elfring 2014). The interplay and interconnection of the forms of capital is perhaps most evident here for economic, symbolic and cultural capital represent the resources (social capital) that are available to entrepreneurs through their networks. Research taking a comparative approach has shown that women entrepreneurs have networks that are smaller and more limited in range and diversity than men (Davis and Aldrich 2000; Renzulli, Aldrich and Moody 2000; Klyver and Terjesen 2007; Hanson and Blake 2009). Moreover, the homophilic tendencies exhibited by men put women at a disadvantage, especially in male-dominated contexts (Ruef, Aldrich and Carter 2003; Godwin et al. 2005). In a Canadian study of women owners of technology firms, for example, Orser, Riding and Stanley's (2011a) found that women encountered significant challenges related to their sex, and were unable to locate support structures within the industry. The authors suggested that the paucity of other women owners available to act as mentors might account for the lack of women establishing businesses in this sector. In a case study of an Irish woman engineer starting a business from a business incubator, McAdam and Marlow (2010) reached a similar conclusion.

Sappleton (2009) extracted a sample of 2214 men and women that were self-employed in male-dominated and female-dominated industries from the 2006 European Social Survey. In multivariate analyses, women who operated firms in traditionally female sectors were found to have the highest levels of social capital (measured in terms of trust, community engagement and social networks). Men and women working in traditionally male sectors exhibited lower levels of social capital. Furthermore, self-employment in a gender traditional or non-traditional sector was found to be a significant predictor of social capital. There were also differences among the samples in descriptive characteristics including income, weekly hours of work and educational levels and disciplines. Differential access to social capital could also affect segregation in business ownership through reputational effects. For example, industry experience leads entrepreneurs to be known by resource providers useful when establishing their own firms (Carter and Marlow 2003).

To summarise, the relationships cultivated by individuals are purposeful – they provide the information, support and instrumental resources necessary to achievement short- and long-term goals. There is some indication from the very limited literature that the resources that individuals draw from networks play an important role in entrepreneurial segregation. Yet we lack an understanding of precisely why this may be so, underscoring the need for further research in this area.

2.5 Gender segregation in entrepreneurship: Knowledge and knowledge gaps

The aim of this chapter was to uncover what is currently known about segregation in entrepreneurship. Yet, research that has directly examined this problematic appears to be few and far between. While there have certainly been some notable attempts to address the issue of segregation in entrepreneurship (particularly Loscocco and Robinson, 1991, Anna et al, 2000 and Swinney et al, 2006), the conclusions that can be drawn from the extant literature are limited. A large proportion of the studies that have been

conducted are highly descriptive in nature (Anna et al. 2000; Verheul et al. 2002; O'Gorman and Aylward 2007); they contain limited detailed analysis of the effects or antecedents of segregation in the entrepreneurial population and often, sample sizes are very small (Verheul et al. 2002; Coyle and Flannery 2005; O'Gorman and Aylward 2007; Eriksson, Henttonen and Merliainen 2008; McAdam and Marlow 2010) limiting the generalizability of the findings.

Examinations of gender segregation in entrepreneurship are overwhelmingly skewed towards discussion of nontraditional women (Coyle and Flannery 2005; Verwey 2005; Eriksson et al. 2008; McAdam and Marlow 2010; Orser et al. 2011a); often the presumption is that the characteristics, qualities or experiences of these women differ from those of traditional women, or from men but the nature of those differences are rarely explicitly examined. There are some comparative studies, but these tend to compare men and women owners within a single industry (Verheul et al. 2002), or to compare traditional and nontraditional women owners (Allen 1996; Chesser 1998; Anna et al. 2000) without considering industry at all. There is a gap in the literature on women's entrepreneurship that has specifically considered the experiences and activities of women operating in male-dominated versus female-dominated fields; the experience of men in female-dominated or female-typed business sectors has been ignored completely. One study (Swinney, Runyan and Huddleston 2006) did compare women and men-owned enterprises in female- and male-dominated sectors, but the manner into which firms were categorized as "male-dominated" and "female-dominated" is highly questionable and was neither described nor justified. For example, "personal services" was treated as a male-dominated sector, and "computer stores" as female-dominated, but US Census Bureau statistics show that some 62 percent of "personal services" (NAICS 812990) businesses are owned or jointly owned by women, while only 34 percent of "computer and software stores" (NAICS 443120) are owned or jointly owned by women (US Census Bureau 2011a).

Taken together with the research that has been conducted in the context of occupations (rather than business ownership), the extant literature implies that a myriad of individual-level and structural-level forces work in tandem to draw business owners into sex-segregated sectors. Based on the conclusions of both bodies of work, one might conclude that, from birth, girls have an innate propensity to, or are socialized to pursue education and careers in female-typed disciplines that are ill suited to prepare them male-typed enterprise. Consequently, or simultaneously, gender stereotypes arise that are both descriptive and prescriptive in nature: designating the roles that are, and should be appropriate for the sexes. Faced with society's beliefs about their proper roles, encumbered with domestic responsibilities and lacking the appropriate infrastructural, financial and social support, women who seek to start firms enter the sectors with the lowest barriers to entry. In contrast, men, who have had access to larger amounts of investment, relevant educational, management and employment experience, and the ability to attract many more crucial resources, have the ability to make broader choices, and their decisions tend to be met with social acceptance.

Notwithstanding this broad conclusion, the findings are contradictory on some of the more detailed aspects that lead women and men to select some business sectors over others. For example, studies that have considered the impact of education and skills on segregation have reached mixed conclusions. While occupational theorists have attempted to draw causal links between sex-type of education and sex-type of occupation (Frome et al. 2008), in entrepreneurship, some business and management scholars have argued that sector-specific knowledge is unimportant when it comes to running a business (Eriksson et al. 2008). To support this contention, several empirical studies have uncovered little correspondence between the activities of women's business ventures and their former occupations (Moore 1999; Fielden, Davidson, Dawe and Makin 2003). Others, however, have linked the paucity of women in male-dominated entrepreneurship to women's

underrepresentation in male-typed education, particularly in technology and the sciences (Chell 2002; Richardson and Hynes 2007). There are yet other studies that suggest that women that are a minority in their jobs or workplaces are provided with a clearer motivation for business ownership than women working in more traditional jobs or sectors. Incidents of sex discrimination and expectations of long hours are said to be higher in male-dominated workplaces (Takruri-Rizk, Sappleton, Worrall, Bezer and Dhar-Bhattacharjee 2006; Watts 2007) so business ownership may be an alluring escape route for these women (Orhan and Scott 2001; Delaney 2003; Britton and Logan 2008).

Another area of the literature in which there is disagreement concerns the role of domestic responsibilities. Some studies suggest that women shy away from male-dominated entrepreneurship because the long hours demanded are incommensurate with running a family (Sappleton 2009). For this reason, researchers have suggested that nontraditional women are less likely to be married or have families (Shelton 2006; O'Gorman and Aylward 2007; Legault and Chasserio 2013). Other results indicate that women with families have greater opportunities to enter male-dominated forms of self-employment because these women have the support of their partners and increased control over their working schedules in male-typed self-employment than in male-typed employment (Delaney 2003).

Clearly, there are considerable gaps in our knowledge about the antecedents of entrepreneurial segregation. Examining the literature, however, there appears to be two issues upon which researchers agree. The first is that women-owned nontraditional enterprises are more sizeable, growth-oriented and financially successful than those located in industries that are traditional for women (Parker 2010; American Express OPEN 2013). The second source of consensus is that nontraditional women perceive less support from family, friends and financial and other institutions than traditional women (Anna et al. 2000; McAdam and Marlow 2010; Orser et al. 2011a); relatedly, they suffer heightened levels of discrimination and are perceived as less credible as

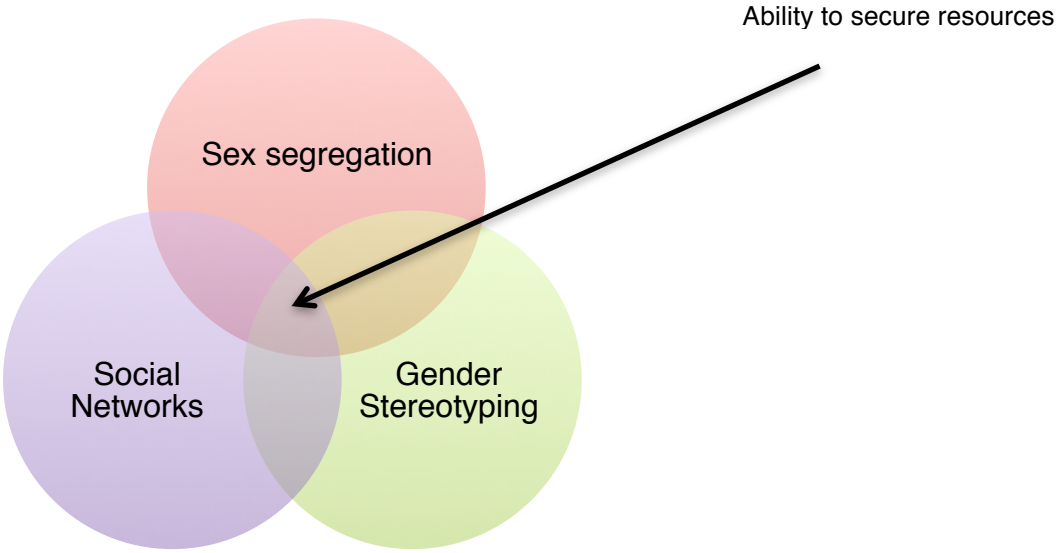
business owners (Chesser 1998; Coyle and Flannery 2005; Verwey 2005). In other words, nontraditional women face challenges posed by their *social networks* and *gender stereotyping.* These observations raise an interesting dilemma: how do females operating businesses in non-traditional industries overcome the barriers of reduced support in order to achieve high levels of success?

This question is at the heart of this thesis and forms the focus of the remaining literature review. It is suggested that the latter part of the equation – the experiences of nontraditional women with regard to social networks and gender stereotyping – could explain the propensity for women to establish businesses in traditionally female sectors, where support from their networks is boosted, and stereotyping is lessened. Importantly, it is theorized that the ability to secure resources is optimal where the sector of choice is the 'right' one (that is, the gender-type of the sector is congruent with one's sex), networks are appropriate (that is, comprised of the 'right' people) and gender stereotyping is reduced.

The concepts of sex segregation, social networks and gender stereotyping are interlinked and interdependent, as illustrated in figure 2.2. In order to survive, new businesses must acquire resources from markets in which they have not yet established legitimacy (Brush et al. 2004; Smith and Lohrke 2008), but the ability to accumulate resources from stakeholder constituencies depends on the support received from those ties, which may be withheld if gender stereotypes are present, driven by the entrepreneurs' decision to set up the business in an industry that is not typical for his or her sex. As Florin et al (2003: 374) have suggested, when a new firm is started "potential stakeholders from the input, output, labor and capital markets lack reliable information about product or service quality, the size of the market for that product or service, the accuracy of sales and earnings forecasts, creditworthiness, and so on. Consequently, whether or not these stakeholders provide resources to a firm will depend partly on how they view the credentials

of its key players… a venture's human resources act as a surrogate indicator of its competences and credibility" Those 'human resources' could be the congruency of the sex of the entrepreneur with the gender-type of the business.

FIGURE 2.2: THE INTERSECTION OF SEX SEGREGATION, SOCIAL NETWORKS AND GENDER STEREOTYPING



It is surprising that the links between social networks and gender segregation in gendered entrepreneurship have not been explored until now. Firstly, the impact of gendered social networks on occupational segregation is well known (Straits 1998; Mencken and Winfield 2000; Buhai and van der Leij 2006; McDonald, Lin and Ao 2009; Kmec et al. 2010; McDonald 2011a; Barbulescu and Bidwell 2013). It is no great leap to suspect that similar processes are operating in the entrepreneurial context, but scholars have so far been unconcerned with how networks might be associated with the gendered construction of a business enterprise. For example, Verheul et al (2002) noted that women-owned real estate firms tend to employ a disproportionate number of women, and they also pointed out that women owners were more likely than men owners to use family, friends, workers and relatives to recruit others, but they failed to explore the possibility that it is these (female) ties that produce female-dominated staff bases.

Secondly, the twin concepts of social capital/social networks are now among the most heavily studied topics in the field of entrepreneurship (Stam et al. 2014). Increasingly, personal relations are being viewed as the key to the construction, functioning and effectiveness of a viable business enterprise (Bjerke 2007). There are innumerous models of entrepreneurial intentions and motivation and they vary in content and focus, but most argue that successful entrepreneurship requires some form of networking. A couple such models are worth mentioning here. Bygrave and Minniti (2000) suggested that entrepreneurship has self-reinforcing and path dependent properties. Likening the decision of whether or not to start a business to whether or not to join a riot, the authors argued that "the probability of an individual adopting a specific behaviour increases at an increasing rate as that behaviour becomes more widespread within his [sic] group" (Bygrave and Minniti 2000: 28). This is because the opportunity for networking reduces transaction costs and increases the number of role models for others. As the rate of entrepreneurship increases, so too does the network externality which spurs others to follow suit. Although the authors are referring to macrosociological processes, this line of reasoning would suggest that women with a taste for entrepreneurship might follow other women they know into similar areas of work. Allen's (2000) empirical study of self-employment migration supports this theory. In making the choice between employment and self-employment, Allen (2000) concludes that a key motivator for self-employed women is the presence of established female (rather than male) entrepreneurs in their social network.

In a different argument, Nijkamp (2003) specified four main drivers of entrepreneurship: 1) displacement (push factors such as loss of a previous job or dissatisfaction with one's current circumstances), 2) disposition to act (pull factors such as the desire for independence or autonomy), 3) credibility and 4) availability of resources. A woman motivated to purse entrepreneurship via push or pull factors may make her choice of sector based on where she will be seen as most credible (*If I set up a construction firm, will I be seen as a*

legitimate?) and which resources she is able to secure (*could I secure the finance, knowledge, information and support to set up a construction firm?).* In other words, social networks and broader business related ties should be seen as "societal contexts" that enable or constrain the agency of the entrepreneur.

In summary, while the literature points to a number of possible causes of entrepreneurial segregation, not all of the knowledge gaps identified above can be adequately addressed in this thesis. But, the importance of social networks and gender stereotyping to resource acquisition (and hence to business establishment) that is hinted at here suggests that an examination of the social structures through which entrepreneurs obtain information, support and other resources seems a worthy place to begin.

CHAPTER THREE: Gender Stereotyping, Social Networks and Social Capital

"When women are asked to name the most significant factors that are holding them back from advancement, the top two answers are "exclusion from informal networks of communication" and "male stereotyping and preconceptions of women" (Heffernan 2002: 2)

3.1 It's not just *what* you know, but *who* you know

The formation of a new business entity has been likened to piecing together a jigsaw puzzle. Prospective entrepreneurs are tasked with identifying, accessing, mobilizing and assembling resources in order to successfully create a viable venture. Budding entrepreneurs are advised that the foremost important task facing them is the "identification and engagement of resources that will make it possible for you to turn your dream into a reality" (Brush et al. 2004). Setting up a business is no easy undertaking; the people that a prospective owner knows, or their *social network*, may be able to directly or indirectly provide assistance, support, information and other necessary resources. Other people are so crucial to the entrepreneurial project that entrepreneurship should be treated as inherently social activity, "embedded in a social context, channeled and facilitated or constrained and inhibited by people's positions in social networks" (Aldrich and Zimmer 1986: 4).

There is a rapidly growing body of literature examining the social dimensions of entrepreneurship (Bygrave and Minniti 2000; Bjerke 2007; Cope, Jack and Rose 2007; Jennings, Greenwood, Lounsbury and Suddaby 2012). For example, in one, review Jack (2010) identified 71 articles on entrepreneurship and social networks in 15 leading business and management journals over ten years. This corpus of research has uncovered links between social relationships and entrepreneurial intentions (Renzulli et al. 2000; Liñán and Santos 2007; Sequeira, Mueller and Mcgee 2007; Hindle, Klyver and Jennings 2009), start-up completion (Hansen 2000; Sousa, Fontes and

Videira 2011), odds of survival (Brüderl and Preisendorfer 1998; De Carolis, Litzky and Eddleston 2009), opportunity recognition (Ozgen and Baron 2007), ability to secure venture capital (Baum and Silverman 2004) and finance before floatation (Florin et al. 2003), internationalization (Zhou, Wu and Luo 2007), and growth (Liao and Welsch 2001; Antoncic 2002; Roomi 2007). During the early phases of firm establishment in which the nascent entrepreneur must make difficult choices about the optimum arrangements for their business, and when risk of failure is highest (Baum and Silverman 2004), the ability to mobilize networks is particularly critical. In the founding and early growth stages of a new venture, building up networks with resourceful others may help them to counter the most common pitfalls of market entry: liabilities of newness, smallness and loneliness (Brüderl and Rolf 1992; Kilduff and Tsai 2003). Social networking is so paramount to the entrepreneurial process that it is even argued to exert a stronger influence on firm performance than human capital (Liao and Welsch 2001; Baum and Silverman 2004; Roomi 2007).

Hence, this chapter reviews the literature on social networks/capital and entrepreneurship, paying attention to observed differences in networks and networking between men and women business owners, but particularly to the differences that entrepreneurs in gender atypical sectors might experience compared to their more traditional counterparts. It is argued that the distribution and acquisition of social capital is irrevocably tied up with contextual factors – specifically, the gendered nature of the industry in which entrepreneurs operate. Business sector is a crucial factor because there remain perennial stereotypes surrounding the nature of businesses that women and men should run. Network ties may be motivated to withhold resources if they view those seeking them as unsuitable for and/or incapable in their role. Accordingly, in this chapter, it is argued that understanding the nature of the interplay between social networks, gender stereotyping and the acquisition of social capital may allow us to more fully understand the processes that bring about entrepreneurial segregation.

The rest of this chapter is organized as follows. The next section discusses gender stereotyping, particularly in relation to the leadership role. It is suggested that rapid growth of female business ownership in the United States has stimulated a weakening of the general 'think-manager-think-male' stereotype, and instigated more specific stereotypes about the types of businesses that women (and less so men) should own and operate. Next, gender role congruency theory is described, and a review of empirical studies applying this theory follows. A separate section examining discrimination against women business owners by financiers is included because this is the largest research stream addressing gender stereotyping in business ownership. The chapter then examines the notion of social capital and the way it is operationalized. A comprehensive review of the comparative literature on women and men's social networks follows. Hypotheses are developed at appropriate points throughout the chapter.

3.2 Gender stereotyping

Gender stereotyping is defined as the act of categorizing a person according to their sex, and attributing to them – either explicitly or implicitly - some commonly held, fixed notion or notions regarding their traits, characteristics or behaviours (Stockdale and Nadler 2013). For example, it is common to assume that women are 'gentle' or that men are 'brave' (Holmes 2007). In business, one of "the most long-standing and pernicious stereotypes is that men are business leaders and women are not" (Godwyn and Stoddard 2011: 73). Chapter 2 demonstrated how assumptions and expectations regarding the traits of men and women tend to dictate the type of work that society deems appropriate for the sexes, which causes occupations to become defined in terms of gender. Similarly, the leader=male stereotype stems firstly from the observation that the majority of leadership positions in firms are filled by men (the *descriptive* element), but is also related to the widely-held belief that men hold the personality traits necessary to succeed in management – characteristics like leadership ability, ambition, competitive drive, and analytical ability (the *prescriptive* element) (Bruni et al. 2004b; Ahl 2006,

2008). This mentality explains why women business owners have reported that new customers and suppliers initially believe them to be the secretary or owners' wife (Marlow 1997; Chesser 1998; Hanson and Blake 2005).

Schein (1973) coined the phrase 'think-manager-think-male' following her early landmark study. She asked 300 male middle line managers to select from a list, the adjectives that described a typical man, a typical woman and a successful manager. The analysis revealed a substantial and significant resemblance between the characteristics used to describe men and successful managers, but no similitude between the ratings of women and successful managers. Items selected to describe men and managers included: emotionally stable, aggressive, direct, has leadership ability, self-reliant, objective, not frivolous and desires responsibility. The few items that were described as similar for women and successful managers included understanding, helpful and intuitive. This study and more recent replications of it (Powell, Butterfield and Parent 2002; Willemsen 2002; Sczesny 2003; Koenig et al. 2011) concluded that gender stereotypes prevent women from entering managerial roles in two ways: firstly, decision makers view women as less capable of the job because their characteristics do not fit with the characteristics required of leaders, and secondly, women are deterred from seeking these roles because of self-image inconsistency.

However, a chronological comparison of studies utilizing the Schein (1973) methodology would suggest a steady weakening of the think-manager-think-male mentality; women in particular display fewer tendencies to stereotype leadership positions (Koch, Luft and Kruse 2005). Koenig et al's (2011) meta-analysis of 69 studies undertaken from 1973 to 2010 found that the construal of the leadership role as a masculine one has decreased over that time period, and that the extent to which the role is stereotyped is moderated by gender of rater, with women research participants less likely to describe the managerial role as requisite of masculine traits. A few studies have explicitly examined the stereotyping of the *entrepreneurial* role, and have reached

similar conclusions. Fagenson and Marcus (1991) asked 65 women attending a training conference to complete the Schein questionnaire, but changed the description of a "successful manager" to a "successful entrepreneur". They found that although masculine characteristics (competitive, active, independent, able to make decisions, does not give up easily, feels very superior, self-confident, and stands up well under pressure) dominated the profile of the successful entrepreneur, women who worked in companies headed by women accorded significantly greater weight to feminine characteristics than did women who worked in firms run by men. More recently, Gupta *et al* (2007) reported that women saw a significantly stronger relationship between female and entrepreneur characteristics than did men. They argued that women are deterred from entrepreneurship not because they see it as inconsistent with feminine characteristics, but because they attract little support from resource providers.

This observed weakening of the gender typing of the generic 'manager' role could be attributed to the growing representation of women in leadership roles. Theorists do argue that stereotypes are less easy to maintain if there is sufficient disconfirming evidence (Powell et al. 2002). As Fine and Kleinman (1983) put it, "even when we lack personal information about the role inhabitant we may infer knowledge about his or her 'person' on the basis of the role, the setting or clothing… so we may regard salesclerks as apathetic, umpires as firm, policemen as violent, or professors as scatter-brained. We use these understandings to guide or behavior when we interact with these persons, *unless we gain additional contrary information*" (Fine and Kleinman 1983: 103 emphasis mine).

Over the same time period since the first Schein study was carried out, women have become a growing constituent of the management/entrepreneur body (American Express OPEN 2013). It is no longer unusual to see a woman in leadership in these contexts. Consequently, the general stereotype regarding women in business may be being replaced by more specific

stereotypes regarding the *type* of business that men and women should lead (Henry et al. 2010). Opportunities for stereotyping based on business type are heightened because while there are more women in business generally, entrepreneurial segregation continues. Kelly *et al* (1993) have argued that stereotyping occurs most often under three scenarios: 1) when a person moves into a nontraditional position; 2) when that person is isolated or a few-of-a-kind and 3) where information about the person is ambiguous to perceivers. The ownership by women of firms in male-dominated industries fits these three scenarios perfectly: in the past two decades, women business owners have begun to establish businesses in sectors traditionally dominated by men, but since overall numbers of women-owned nontraditional businesses remain small, few individuals in society have the opportunity to interact with these women (American Express OPEN 2013). This suggests that the *context* in which business activities take place remain gender-typed, and that this may moderate the degree to which women are considered suitable for leadership roles. Thus, it is conjectured that, because of women's short history as business owners in sectors that remain dominated by men, the general think-manager-think-male stereotype has been replaced by more specific stereotypes regarding the type of business that men and women should own and operate.

3.3 Role congruency theory

Gender role congruency theory provides a model for understanding the relationship between the perceived fit between an individual and their occupational role, and the ensuing social outcomes. Linton (1936) famously defined a 'role' as a performance: a cluster of expected behaviour patterns and obligations attached to a particular social status in which expectations are culturally and socially defined and individuals are pressured, rewarded and punished to adopt certain roles and to reject others. West and Zimmerman (1987) argued that gender is one such role, and individuals 'do' gender by acting in accordance with commonly accepted gender-appropriate behaviours. In articulating gender role congruency theory, Nieva and Gutek (1980) argued

that performing gender-typed tasks is one way in which the sexes meet these expectations. Trust and legitimacy arise between actors if inferences about the behaviour of each are empirically met. The punishment for violating the expected patterns of behaviour for a gender role is negative evaluation. Thus, where a task is male-typed, men receive more favourable evaluations than women. Where a task is female-typed, women are judged as more competent than men. "One might expect a woman who expressed an opinion about child care facilities to be seen as more knowledgeable about that issue than a man. If the woman were seen as more knowledgeable than the man, she is likely to be seen as more credible and consequently, should be able to exert greater influence on the audience than her male counterpart" (Feldman-Summers, Montano, Kasprzyk and Wagner 1980: 312).

To support the theory Nieva and Gutek (1980) presented evidence that both men and women suffer when applying for gender incongruent jobs, and that studies showing that men are favoured over women in certain jobs or tasks all tended to use male-typed situations (e.g. manager, scientist, professor). In fact, the theory is often articulated in relation to occupation because, like sex, it is one the most basic levels of human categorization ('What do you do?' is often one of the first questions newly introduced people ask each other), and since occupation and sex are generally correlated, they tend to be used together in the development of descriptive and prescriptive stereotypes. Because individuals have many roles and identities (gender, race, family status and so on), only the role that is most salient in a given situation is used to make inferences about their suitability for, and capabilities in a particular role. Where occupations are heavily sex-segregated, sex is both the most readily observable and salient characteristic of the occupation, and is thus used to denote expectations about the behaviour of the incumbents of the occupation. In other words, incongruency makes the incumbent's sex more salient as a basis for evaluation. This is what Kram and Hampton (1998) were referring to when they talked of women entrepreneurs being trapped in a 'visibility-vulnerability spiral'. When women are unusual and form a numerical

minority in their role - “an X in a series of Os” (Kanter 1977) - they are subject to greater levels of visibility and therefore scrutiny:

> “Gender specific expectations are likely to result in negative attributions of women leaders, particularly in highly prescriptive organizational cultures in which appropriate sex role behavior is clearly – and narrowly delineated. This combination of dynamics means that, in general, a woman’s performance in a role is more likely to be negatively evaluated than a man’s, *especially in male-dominated organizations where the evaluators are likely to be male*” (Kram and Hampton 1998: 216, emphasis mine).

Evidence to support the theory is abundant in studies conducted in non-business contexts. Studies on debate and discussion have found that a match between sex of speaker and the gender-type of discussion topic increases the speaker’s status and influence (Correll and Ridgeway 2006). In one empirical study, Baron (2001) showed that men scientists exhibited greater confidence and influence than women (who were also experts and established scholars in their (male-typed) field) during professional debates at conferences. Gunnarsson (2001) reported similar results in an ethnographic study of seminars in two Swedish university departments. In the male-dominated humanities department, women withdrew from participation, or were met with resistance or disregard if they attempted debate. In the social sciences department however, where women had stronger academic standing, women were able to play a much more central and assertive role. In laboratory experiments using mixed-sex groups men display greater power and influence when discussing male-typed tasks, such as changing car oil while women exhibit greater influence in the discussion of ‘feminine’ issues such as personal safety (Correll and Ridgeway 2006; Reid, Palomares, Anderson and Bondad-Brown 2009). In addition, men exhibit greater influence when discussing gender-neutral topics because “sex serves as a primary status

cue when there is no other information indicating competence and power differences among interactants" (Dovidio et al 1988: 582).

There are just a few studies conducted in the context of business leadership and they yield similar results. In a laboratory experiment, Garcia-Retamero and Lopez-Zafra (2006) asked subjects to evaluate a man or woman candidate for a leadership role in a gender congruent or incongruent industry. The results were suggestive of discrimination against the womanwhen she was being assessed for a position in a gender incongruent industry. Interestingly, however, and contrary to the conclusions of Koch et al (2005) and Koenig et al (2011), discrimination against the woman candidate was strongest among women, rather than men evaluators. Heilman and Chen (2003) argued that when women enter entrepreneurship in male-typed contexts, the perceived lack of fit between their sex and the gender-type of the industry creates challenges in establishing a client base. Gutek et al (1999) also conjectured that when confronted with a choice between a traditional or nontraditional service provider, customers favour the provider whose gender is congruent with the norm. Coyle and Flannery's (2005) interviews with women business owners in industries dominated by men offer some empirical support for these propositions. They report that women experienced a much higher incidence of discrimination and prejudice when dealing with clients - especially men - than they did when dealing with employees. In such interactions, women non-traditional owners were afforded less power and status and their credibility and expertise was questioned. Male clients expressed skepticism of the quality of their products and workmanship or questioned their ability to take on a project because of family responsibilities; at other times they refused to recognize them as legitimate owners of their own firms or treated their ventures as hobbies. Some women even encountered flirting, innuendos or inappropriate touching. The authors concluded that it was the women based in the most densely male-dominated fields that experienced the greatest number of gender-related barriers. However, since the authors did not interview women based in traditionally

female industries, it is not possible to say definitively whether the reported level of discrimination was industry-related.

Bates (2002) argued that women-owned firms encounter buyer discrimination when they seek out markets beyond the (female) household clientele. Analysing the US Census Bureau Characteristics of Business Owners data, Bates found that even when variables representing capacity for serving business and government clients were statistically controlled, women-owned businesses were less likely to sell to other firms and government agencies than those headed by men. Bates (2002: 321) concluded that these women experienced buyer discrimination: even in skilled services, construction and related goods industries (the industries most easily able to penetrate business-government markets), "capacity notwithstanding, owner gender by itself is a major factor shaping market access". Anecdotal evidence from Coolidge (1998) lends support to Bates' findings, and qualitative research indicates that restricted market access may be related to the shortage of women in large corporate and government procurement and contracting offices (Brush 1997).

Not all studies reach conclusions consistent with role congruency theory. Mohr and Henson (1996) conducted an experiment in which 236 subjects rated customer satisfaction in service failure situations. A male or female agent displayed poor service in one of four situations: nursing, automobile service, small appliance repair and a typing course. For the female-typed situations (nursing, typing course) respondents were more satisfied when the employee was congruent, but for the male typed jobs, respondents were more satisfied with the incongruent employees. Overall, customers were more satisfied when the employee was a woman. In another laboratory experiment, 209 MBA students rated the performance of men and women sales representatives in gender-stereotyped roles (selling diesel engines or selling jewellery) (Russ and McNeilly 1988). In contrast to the Mohr and Henson (1996) study, respondents in this study viewed "men as capable of filling both

traditional and nontraditional roles but [were] neutral about whether women can also do both" (Russ and McNeilly 1988: 51).

Another scenario in which role congruency has been tested is the supervisor-subordinate relationship. A number of comprehensive meta-analyses of papers on gender and leader effectiveness have concluded that men and women are perceived as equally effective leaders, unless the role itself is gendered (Eagly, Karau and Makhijani 1995; Eagly and Karau 2002; Koenig et al. 2011). In male-typed roles, evaluations of women are prejudiced because being able to do the job well is strongly associated with male characteristics. Experimental studies on the gender-role congruency of leaders in the workplace are few and many are now outdated (e.g. Rosen and Jerdee 1973; Cohen, Bunker, Burton and McManus 1978). However, a fairly recent review has collated the older findings and others, concluding that women in incongruent fields do suffer from prejudice (Eagly and Karau 2002). Another empirical study of men and women upper level managers found that women experienced greater stress levels in male-typed sectors with women reporting that much pressure stemmed from discrimination (Gardiner and Tiggemann 1999).

Herrick's (1999) case study comparing the experiences of two upper level women managers in one manufacturing firm is illuminating because it highlights the importance of both sex segregation and gender role congruency on staff attitudes to managers. The case study firm is described as highly sex segregated – all forklift drivers, warehouse foremen and supervisors are men, whereas women are found in clerical roles. One senior level manager – Rose – who is responsible for all-male staff is perceived as competent but disliked and viewed as a "bitch". Since her subordinates refuse to work under her, Rose is soon replaced by "a strapping 6'2", no-nonsense kind of guy… He too barks directions, and he too is soon disliked, but orders begin to go out on time" (Herrick, 1999: 287). After Rose's demotion, "some of the guys in the warehouse – much to their own amazement – begin to find her attractive.

They claim she 'looks different somehow - softer'. They even flirt with her and dare to consider asking her out" (*ibid*: 287). Herrick (1999) suggests that the male replacement's use of the same "no-nonsense" style of management as Rose was accepted because the employees found those qualities natural and acceptable for a man. To emphasize the point, Herrick also describes the experience of another female senior manager - Kathy - who is well-liked and powerful; a fact that is partly attributed to her role as personnel manager (a stereotypically female role), and partly to her effort to behave "in accordance with the local norms at Phoenix for feminine behavior – baking cookies for people's birthdays, circulating birthday cards, arranging for cakes and parties to commemorate employee anniversaries, organizing baby showers for the women in the plant, providing candy for every team meeting, listening to complaints and problems, and never openly confronting anyone" (*ibid:* 291). While it seems of interest, Herrick does not discuss the possibility that Rose's newness at the firm prevented her from building the legitimacy and symbolic capital that allowed Kathy to perform her role effectively.

It is worth noting that studies of men in nontraditional occupations generally concur that men do not experience tokenism, stereotyping and backlash in the same way that women do; in fact, they often benefit from their sole status. Being a man in a 'woman's world' is a source of simultaneous advantage and disadvantage (Foster and Newman 2005). It is a source of disadvantage because men in such professions must negotiate around accusations or expectations of hyper- or hypo-masculinity. For example, men in Allan's (1993) study of elementary school, teachers complained that the man who is too masculine is suspected of being an incompetent and insensitive teacher but the man who is empathetic and nurturing is stereotyped as feminine and unnatural. The 35 male primary school teachers in Foster and Newman's (2005: 342) study were seen simultaneously as "handyman, sportsman, sexual predator, precocious careerist, potential child abuser, staff room sex symbol, discipline man, father figure, or simply a comment-worthy rare commodity". At the same time, being a 'nontraditional man' is a source of

advantage because these men are able to capitalize on their rare nature through preferential hiring practices (Cameron, Moss and Owen 1999; Henson and Krasas Rogers 2001; Carrington 2002; Foster and Newman 2005); in employment, nontraditional men are often paid more than their female colleagues, are able to capture are able to capture the most lucrative specialties (Simpson, 2004; Lupton, 2006), receive favourable treatment (Simpson 2004) and dominate the most powerful positions (Cushman 2005), a phenomenon that has been termed 'the glass escalator' (Snyder and Green 2008).

Longitudinal analyses suggest that employment for men in female-dominated work is brief and unusual. Women are pushed out of male-dominated work, but men are pulled out of female-dominated work in upward moves (Jacobs, 1993). There are a higher proportion of men in the upper echelons of female-dominated jobs (librarianship, primary school teaching and so on), than there are in these jobs as a whole. For example, men make up a tiny minority of elementary school teachers, but the majority of school principals (Foster and Newman 2005; Blau et al. 2006). For example "male doctors, embarrassed by the sexual connotations of the doctor/nurse relationship, often treat male nurses as junior doctors, explain more processes to them, and facilitate their speedier progress through the system" (Pringle 1993: 141-2). Indeed, for men engaged in women's work, starting a business is a way of reasserting the vertical element of the sexual division of labour, enabling the male to distance themselves from the rank-and-file, identify with the leadership role rather the shop-floor and escape the less well paid, less autonomous, lower status, less challenging and more rigidly controlled nature of much 'women's work' (Cameron et al. 1999; Christie 2006).

Because of socialization, women are expected to be more cooperative and welcoming to a male token than vice versa (Pringle 1993), and if men experience any exclusion from female networks it is said to be self-imposed (Cameron, 1999). In any case, unlike employees, it could be argued that

rarely could a male business owner be described as a token. Women business owners do not form a majority in any four-digit classified industry, except childcare (US Census Bureau 2011b, 2011a), and the pervasive stereotype that owning a running a business is something that men 'do' generally outweighs industry-related stereotypes (Bird and Sapp 2004). Taken together, the literature suggests that women nontraditional entrepreneurs will suffer greater discrimination than women pursuing more traditional activities. Nontraditional men are not expected to suffer in this way because "In industries where men-owned businesses historically have had strong support from customers, business networks, and families, they probably continue to receive it" (Bird and Sapp 2004: 10). Stated formally:

H1a: Nontraditional women owners suffer greater levels of perceived discrimination than traditional women.

H1b: There are no differences in the levels of perceived discrimination suffered by nontraditional men owners and traditional men owners.

3.4 Role congruency and discrimination by financiers

Many researchers have presented copious evidence of perceived discrimination against women entrepreneurs by banks, venture capitalists and other financiers. This is an important observation because business activities rely heavily on financial resources – without them, discontinuation is a real possibility. Accordingly, the research on discrimination against women business owners by financiers is examined below. There are three reasons for isolating this body of research. Firstly, it is by far the issue to which scholars have paid the greatest empirical attention (Watson 2009; Robb and Watson 2012). Secondly, longitudinal analyses have shown that capital endowments at start-up are strongly associated with value of assets, number of employees and sales turnover many months or even years later (Carter and Rosa 1998; Dahlqvist et al. 2000; Bird and Sapp 2004; Alsos et al. 2005) and undercapitalization is said to be the greatest cause of business failure amongst small firms (Blake 2006). Thirdly, it highlights the importance of social networks because connectedness to others is crucial in guiding

potential and existing entrepreneurs to financial capital in its varying forms (Brush et al. 2002; Madill, Riding and Haines Jr 2006; Harrison and Mason 2007; Kwon and Arenius 2010). Women may face difficulties securing finance through the regular channels (i.e. bank loans) because their business profile – typified by small, low-growth firms – are less favourable to investors (Shane and Cable 2002), making network ties a particularly important source of capital for women.

Some studies have found that women are more likely to be turned down for a loan than men (Coleman 2000; Verheul and Thurik 2001; Constantinidis, Cornet and Asandei 2006; Muravyev et al. 2009; Gicheva and Link 2013) and therefore are forced to rely more heavily on friends and family, savings or bootstrapping as funding sources (McClelland et al. 2005; Coleman and Robb 2009; Neeley and Auken 2009). Where women are able to obtain bank loans, they are required to pledge personal guarantees (Klapper and Parker 2010), or personal collateral (Riding and Swift 1990) more often than men, and face more restrictive covenants, higher capital and credit enhancement requirements, tighter repayment terms and higher credit costs than their male counterparts (Bellucci et al. 2010; Wu and Chua 2012). One paper concluded that all-female teams (as opposed to sole traders) obtain lower levels of financial capital than male sole traders (Carter 1997). Brush *et al* (2002) discovered that just 2.4 percent of venture capital investments made between 1957 and 1998 were in women-led businesses. Alsos et al (2005) found statistically significant differences between the levels of financial capital that women and men were able to raise – even when funding perceptions and activity in applying for loans were controlled. Most of these studies have attributed women's trouble in securing finance to the prejudiced attitudes held by financiers: lenders are described as "unsympathetic, and patronizing" (Goffee and Scase 1985: 636), with a "reputation for failing to give women's businesses the credibility they deserve" (Allen and Truman 1992: 122).

Others have found no evidence of discrimination. Treichel and Scott's (2006) analysis of three rounds of the National Federation of Independent Business' Credit, Banks and Small Business (CBSB) survey *(n=*7786) found no relationship between sex of applicant and turndown rates, but women did tend to apply for fewer loans, and when they did apply, they applied for smaller amounts. In an analysis of the financial fortunes of over 4000 Canadian firms, sex of owner was not a significant predictor of the level of total debt to total assets, the level of externally acquired debt or the likelihood of applying for, or being approved for a bank loan (Coleman 2002). In another Canadian study, Haines et al (1999) found no sex differences in loan size, collateral requirements or interest rates after controlling for firm characteristics. In analyses of debt, lease and supplier financing, Orser *et al* (2006) found no sex differences in turndown rates, and the differential rates at which women and men-owners applied for debt, lease and supplier financing disappeared when size and sector of firm were controlled. Similar results were reported by Madill, Riding, and Haines Jr. (2006). Buttner and Rosen (1989) reported that loan officers were equally likely to approve male and female entrepreneurs' loan applications; they were also equally likely to make a counteroffer to owners of both sexes, and there was no significant difference in the value of the counteroffer. Analysing data from the 1998 Survey of Small Business Finances, Mitchell and Pearce (2005) uncovered evidence of race, but not sex discrimination by lenders. In the Australian context, Watson (2006) did find that SMEs headed by women acquired less external funding than those run by men, but that sex differences were greater for older, rather than younger firms, undermining the notion that the differences are caused by systematic discrimination. Later research by Watson and colleagues (Watson 2009) also could find no evidence that the gender-finance gap is driven by supply side factors.

What could possibly account for the inconsistencies in these findings? In assessing the risks and costs associated with investing in or extending a loan to a small business, financiers supposedly base their decisions on a set of

generalized, objective criteria (Carter, Shaw, Lam and Wilson 2007). These criteria include the characteristics of the firm (such as sector, size, and stage of business cycle) as well as characteristics of the owner (such as age, experience and personal assets). Yet, given information asymmetries and time constraints (Haines et al 1999 estimate that the average account manager in a Canadian bank has little more than one working day to spend with each client), decision makers may rely on cultural stereotypes when making lending decisions. Examining the literature, it could be possible that the inconsistent findings have arisen because sector of firm is rarely controlled. Industry is important because "gendered beliefs about the proper roles for women may discourage bankers from lending capital to women in nontraditional industries" (Godwin et al. 2005: 30-1). Back in 1989, Brophy (1989: 73) had argued that women's financing difficulties have "been due to attitudes held by representatives of male-dominated institutions – and often reinforced by businesswomen themselves – regarding the proper role of women in business. That role has been seen as staff or part-time employee or business hobbyist, and – if an entrepreneur at all – one confined to businesses traditionally run by women: retail and service businesses for the most part". A more recent quote from a venture capitalist that specializes in financing computing firms indicates this view has not dissipated: "I would never invest in a women-led business. Don't get me wrong, women are great for day care centers and have done a lot for customer service, but as an investor, you can't take a chance that they might leave to get married or pregnant" (cited in Brush et al, 2004: 72).

Among such a vast number of empirical studies, it is quite surprising that few researchers have explicitly examined whether there is an interaction between sex of finance seeker and gender-typicality of business venture. For example, Buttner and Rosen (1989) reported no evidence of discrimination in their study of loan decisions given by 51 commercial loan officers (40 of whom were men) and 69 undergraduates (34 men), but the hypothetical business plan that the subjects were asked to evaluate was in a patently male-typed sector

(toxic waste disposal). Additionally, sex of decision-maker was not examined as an intervening variable. Research from the early 1980s found that businesswomen in manufacturing and other industries dominated by men faced more difficulties in obtaining external finance than women in retailing and services (Hisrich and O'Brien 1981). One-quarter of the women in Borooah et al's (1997: 86) study of Northern Irish business owners described their gender as hindering their access to external finance; many complained that banks "took them seriously only when the chosen business was in 'women's' area". (These results should be treated with caution because business ownership amongst women is somewhat uncustomary in conservative Northern Ireland, and the findings were based on a low survey response rate of 22.4 percent). Marlow and Strange (1994: 181) contended that "bank managers are still reluctant to fund female ventures, particularly those which stray beyond traditional feminized occupations".

With regard to venture capital, Greene et al (2001) noted that most investments of venture capital are made in industries that offer the best risk/reward ratios. In 2003, 90 percent of venture capital dollars went to organizations in just nine industries - telecommunications, software, biotechnology, medical devices and equipment, semiconductors, media and entertainment, computers and peripherals, IT services and industrial energy; all male-typed industries (Brush et al 2004). So, "the predominant industry choices of female entrepreneurs appear to be mismatched with the industry preferences of venture capitalists" (Greene et al 2001: 68). Although the proportion of venture capital investments made in women-led firms appears to be growing, up until 1998, no investments had yet been made in women-led firms in construction, public admin or finance, insurance and real estate (Greene et al 2001).

In one simulated experiment, men and women undergraduates evaluated a hypothetical loan application and business plan (Buttner and Rosen 1988). Sex of entrepreneur and sector of business were manipulated. The results

indicated that men decision makers were more supportive of women seeking finance for a traditionally female firm, and more supportive of men establishing a traditionally male company. Women decision makers, on the other hand, supported entrepreneurs of both sexes regardless of gender typicality of sector. The authors concluded that nontraditional women business owners are disadvantaged when seeking start-up capital, and recommended that they seek out a woman financier. This study was a laboratory experiment and undergraduates are not decision makers. But in interviews with bankers, Blake (2006) confirmed that certain sectors (such as construction) were seen as more appropriate for men owners while others were deemed suitable for women. She went as far as to conclude that "to succeed at securing a business loan in these environments women must… be starting a business that is perceived as needed within the local context, *but which is not perceived to be something that 'men do'*" (Blake 2006: 196, emphasis mine). A man loan officer in that study cited the example of a woman who began a cleaning firm with a loan from his bank. Despite the applicant's previous job in auto repair, the banker admitted that he would have had "a greater degree of difficulty granting the loan to her if she had wanted to start a business as a mechanic" (*ibid:* 195). This example is important because it belies the notion commonly held by financiers that prior experience is an important prerequisite to venture success. Blake (2006) argues that because lenders see the firm and the owners as one-and-the-same, loan officers consider the legitimacy of the individual concurrently with the legitimacy of the enterprise:

> "Women's participation in entrepreneurship, especially in traditionally male-dominated sectors, is likely to challenge notions held by bank loan officers and others regarding definitions of who is an entrepreneur. Women are therefore subject to a kind of *gendered legitimacy* that men do not face as they start and run their businesses. When there is confusion regarding the legitimacy of a person for an activity that they are undertaking…doubt is likely to be case over the legitimacy of the whole enterprise" (Blake, 2006: 188; emphasis in original).

To summarize, there is a now a vast body of literature that has sought to examine whether women business owners experience discrimination in

seeking out loans and other types of finance. These studies have had mixed and often contradictory results. However, they have rarely taken account of firm sector in reaching conclusions. Role congruency theory predicts that stereotypes about women's abilities in gender-typed fields will affect lenders' decisions about whether to extend finance to women entrepreneurs. External resource holders may capitulate to stereotypes in making the decision to invest time, capital or other resources in the organization, particularly if a firm has little in the way of a track record by which outsiders can evaluate their quality and potential. Thus, women that operate firms in traditionally male sectors may be viewed as illegitimate players, and denied the funding they seek. Therefore:

H2a: Women owners of firms in male-dominated sectors experience greater perceived discrimination from financiers than women owners of firms in female-dominated sectors.
H2b: There is no difference in the level of perceived discrimination from financiers experienced by men owners of firms in male-dominated sectors and men owners of firms in female-dominated sectors.
H2c: Women owners of firms in male-dominated sectors experience greater difficulty in obtaining external finance than women owners of firms in female-dominated sectors.
H2d: There is no difference in men owners' of firms in male-dominated sectors and men owners' of firms in female-dominated sectors ability to obtain external finance.

3.5 What *is* social capital?

In the introduction to this chapter, I hinted that social networks are not important in themselves, but because they allow business owners to generate social capital. Before proceeding any further with this argument, it is useful to discuss exactly what is meant by 'social capital'. This, however, is a frustrating challenge – the meaning of the term is slippery, unclear and subject to considerable metamorphosis (Anderson, Park and Jack 2007). Social capital

has been called a “terminological jungle in which any newcomer may plant a tree” (Nohria 1992: 3) and research on it has been accused of “a lack of consensus about its meaning, by conceptual ambiguity, and by a muddling up of outcomes and indicators” (Ven Deth 2008: 153). To demonstrate this, a selection of definitions of social capital found in some of the literature surveyed is outlined in table 3.1. It is clear from the table that meanings are disparate: social capital is taken to denote networks in some papers, resources in others, and trust in others still. This definitional miscellany raises important implications for the current study because it is impossible to examine the interplay between gender, entrepreneurship and social capital if we do not know precisely what social capital *is*. For example Dubini and Aldrich (1991) argued that it is network density that is associated with success in entrepreneurship, but Elfring and Hulsnik (2001) contended that diversity (in terms of a mix of weak and strong ties) is the more important indicator because network density hampers innovativeness (this directly contradicts Dubini and Aldrich’s argument because density is often treated as an inverse indicator of diversity).

TABLE 3.1 SELECTION OF DEFINITIONS OF 'SOCIAL CAPITAL' USED IN THE LITERATURE

Definition	Source	Notions
"…the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition.	Bourdieu, 1986: 248	Actual and potential resources
"social networks and the norms of reciprocity and trustworthiness that arise from them"	Putnam, 2000: 19	Networks, norms, reciprocity, trust
"…resources embedded in a social structure which are accessed and/or mobilized in purposive actions"	Lin, 2001: 12	Accessed resources
a "relational phenomenon" which "refers to the social connections entrepreneurs use to obtain resources they would otherwise acquire through expending their human or financial capital"	Cope, 2007: 214	Network ties, access
"a resource reflecting the character of social relations within the nation, expressed in residents' levels of generalized trust and breadth of formal organization memberships"	Kwon, 2010: 316	Trust
"a revolving mutual fund of traded and untraded interdependencies"	Anderson & Jack, 2007: 246	Relations, reciprocity

Crucially, the different proxy measures for the various components of social capital derive dissimilar, and often conflicting, predictions. Crowell (2004) seems convinced that increasing the diversity and reach of their social networks is key to boosting women's social capital, but Klyver and Tjersen (2007) treated social capital as density and concluded that there were no sex differences in social capital between men and women business owners. Runyan *et al* (2006) compared the social capital of men and women business owners in rural Michigan and Oklahoma and concluded that women had higher levels of social capital than men, but at least two of their methods of operationalizing the term ('shared vision' and 'perceptual homophily') are very uncommon ways of measuring social capital.

The three most commonly cited social capital theorists are Pierre Bourdieu, James Coleman and Ronald Burt. Although he is not the earliest discussant, Bourdieu (Bourdieu 1986; Bourdieu and Wacquant 1992; Bourdieu 2000) is usually recognized as providing the most refined discussion of the concept.

Bourdieu (1986) identified four forms of capital: economic, cultural, symbolic and social. The latter is "…the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (*ibid:* 248). Like the other forms of capital, social capital is an investment - a stock that should be accumulated and that will generate profits in the long-term. Cultural, symbolic and social capital are independent concepts, but "economic capital is at their root" (*ibid*: 253). Thus, the profits of social capital often incur economic costs; such as when MBA students purchase expensive education in Ivy League Schools. But, the returns on investments in social capital are potentially high and exponential; once procured, social capital reduces transaction costs for collaborating individuals, and, unlike wealth and other forms of capital, it increases, rather than depletes with use (Bjerke 2007; Liñán and Santos 2007).

Ronald Burt (1992, 1997, 2001) argues that social capital is produced by the symbolic processes of exchange, trust and reciprocation. Following Loury (1989 originally 1977) Burt contends that, under economic systems characterized by perfect competition, social capital is constant and evenly distributed. But, since imperfect competition is the norm in most marketplaces, social capital produces inequalities between people and groups. Explicitly, Burt (1992: 10) states:

> "Within an acceptable range of needed abilities, there are many people with financial and human capital comparable to your own. Whatever you bring to the production task, there are other people who could do the same job – perhaps not as well in every detail, but probably as well within the tolerances of the people for whom the job is done. Criteria other than financial and human capital are used to narrow the pool down to the individual who gets the opportunity. Those other criteria are social capital. New life is given to the proverb that says success is determined less by what you know that by whom you know"

Thus, in situations where individuals and groups with similar financial and human capital are competing for scarce resources, those with superior social

capital are advantaged. This social capital can be measured as the volume of a person's "friends, colleagues and more general contacts through which you receive opportunities to use your financial and human capital" (*ibid:* 9).

Coleman (1988) treats social capital as a productive entity; an intangible means to an end that has value for both economic and noneconomic outcomes. Seen in this way, social capital is defined by its function: an indefinable dimension of social structures that facilitates or constrains the actions of actors within the structure. "The function identified by the concept of social capital is the value of these aspects of social structure to actors as resources that they can use to achieve their interests (*ibid*: 101). Coleman (1988) argued that social capital is transmitted through 1) obligations and expectations 2) norms of behaviour and related sanctions and 3) information channels. In contrast to Bourdieu, Coleman seems to suggest that social capital is not produced by some strategic networking campaign, but is a welcome yet serendipitous by-product of individuals' everyday social interactions: "[the] means by which information can be acquired is by use of social relations that are maintained for other purposes…all social relations and social structures facilitate some form of social capital; actors establish relations purposefully and continue them when they continue to provide benefits" (*ibid*: 104-5).

Another popular conceptualization of social capital is provided by Portes (1998, 2000). Portes (1998: 12) defines social capital as "the capacity of individuals to command scarce resources by virtue of their membership in networks or broader social structures... The resources themselves are *not* social capital; the concept refers instead to the individual's *ability* to mobilize them on demand" (emphasis in original). This definition indicates that social capital lies in the ability of individuals to acquire resources – but Portes is quiet as to what constitutes capacity. Under this definition, wealth, status, power, influence, coercion – even gender itself - could be considered 'social capital'. The breadth of this conceptualization is especially intriguing when

considered alongside Portes' call for a less misty definition of social capital that distinguishes between the a) possessor of social capital (the recipient), b) the sources of social capital (the donors) and c) the resources themselves.

Like Coleman, Nahapiet and Ghoshal (1998) also identified three elements of social capital: structural, relational and cognitive. The structural dimension refers to the readily visible morphological pattern of linkages between actors. The relational element relates to the meaning embedded in ties that facilitate cooperation and exchange; in other words, trust and trustworthiness, norms and sanctions, obligations and expectations, and identity. One key facet of this dimension is group identification, which "may not only increase the perceived opportunities for exchanges but may also enhance the actual frequency of cooperation… in contrast, where groups have distinct and contradictory identities, these may constitute significant barriers to information sharing, learning and knowledge creation" (Nahapiet and Ghoshal 1998: 256). Cognitive social capital refers to shared systems of meaning between actors that arise through a common language or narrative; this type of social capital is best cultivated in stable, dense networks characterized by high levels of interaction. The authors argue that this cognitive social capital facilitates direct communication between interactants and motivates individuals to engage in social interaction and exchange.

This short overview shows that social capital can be – and has been – defined and operationalized in seemingly countless ways. Each has advantages and drawbacks for a study of gender, segregation and resource acquisition. Nahapiet and Ghoshal's (1998) articulation is especially appealing because the inclusion of the cognitive element would allow for an explicit exploration of how gender identity influences the exchange of "information sharing, learning and knowledge creation". However, while the structural element of social capital is easily identified and measured, the cognitive element to which they refer is not. Coleman's definition has attracted criticism from commentators for its imprecision, ambiguity and extensiveness (Portes 2000; Smith 2000; Sobel

2002). The argument that "social capital is defined by its function" (Coleman 1988: 90) effectively conflates "the existence of social capital with outcomes obtained using social capital" (Sobel 2002: 146), rendering the concept an unfalsifiable truism. But while the tautological nature of Coleman's conceptualization reduces its usefulness somewhat, his forms of social capital are more parsimonious than Nahapiet and Ghoshal's.

Indeed, parsimony is a major consideration when settling on a conceptualization: from a methodological perspective, it is important to employ a definition that can be operationalized and measured straightforwardly. At the same time, simplicity should not be pursued at the expense of veracity. I do wish to avoid adding another definition of social capital to an already overflowing pot – a problem that has plagued much sociological research in this area. Hospers and van Lochem (2002: 52) have lamented that "as nearly everyone starts from a perspective grown out of their own definition and purposes, social capital has become an elastic and universal notion". Any conceptualization used should be a commonly accepted well-known measure (c.f. Runyan et al's 'shared vision' definition), but must at the same time avoid the pitfalls of tautology and expansiveness of which Coleman and others (Putnam's treatment of social capital has also been charged with logical circularity) have been accused.

The Bourdieuian resource-based notion of social capital meets all of these criteria. Recently, a group of academics led by Nan Lin have agreed to use a broadly resource-based notion because it treats the resources obtained from networks, rather than the networks themselves as social capital (see the 2008 Lin and Erickson volume *Social Capital* for a discussion of research conducted under this guise). This makes sense for the current research because what may affect industry choice in entrepreneurship is the ability to mobilize the necessary tangible and intangible resources (e.g. equipment, staff, loans, moral support). There is little worth in having extensive networks if no resources can ever be obtained from them. Additionally, resources are

directly observable and measurable; social capital is thus more easily operationalized using a resource-based approach.

That is not to say that resource-based notions do not suffer from inconsistencies. Compare, for instance, Portes' (1998: 12) definition of social capital: "the capacity of individuals to command scarce resources by virtue of their membership in networks or broader social structures… The resources themselves are *not* social capital; the concept refers instead to the individual's *ability* to mobilize them on demand" (emphasis in original) – to Bourdieu's (1986: 248) vision "…the sum of the resources, *actual or virtual*, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (emphasis mine). These conflicting characterizations raise a query that has most succinctly been posed by Anderson *et al* (2002: 247): "how is it possible for social capital to be both the resources and the method of unlocking the resources?"

This problem, I believe, can be resolved by distinguishing resource *accessibility* (i.e. the ability to reach those parties that hold the resources necessary for the business enterprise) from resource *appropriability* (i.e. the ability to capture the resources held by those parties for use in the business enterprise). Rarely have researchers made explicit such a distinction (Hansen, 2000 is an exception) – even Lin and his students, despite their Bourdieuian proclamations, persist in using a network instrument – the Position Generator (see chapter 5) – that captures only the potential, rather than actual impact of social networks on social capital. Just because an individual has a connection to a wealthy or privileged other, it does not necessarily mean that he or she is able to benefit directly from the tie. As I shall show in the rest of this chapter, empirical research has measured *potential* social capital (e.g. by calculating the size of social networks) but has not measured *actual* resources extracted. The ability to capture resources is recognized as linked to trust, credibility and legitimacy (treated as elements of social capital in the Coleman

conceptualizations and other definitions e.g. Liao and Welsch 2001). Gender stereotyping should be viewed as a key facet of the cognitive process that impacts on trust, credibility and legitimacy and thereby drives resource holders whether or not to extend resources.

3.6 Measuring social capital using social networks: Does size matter?

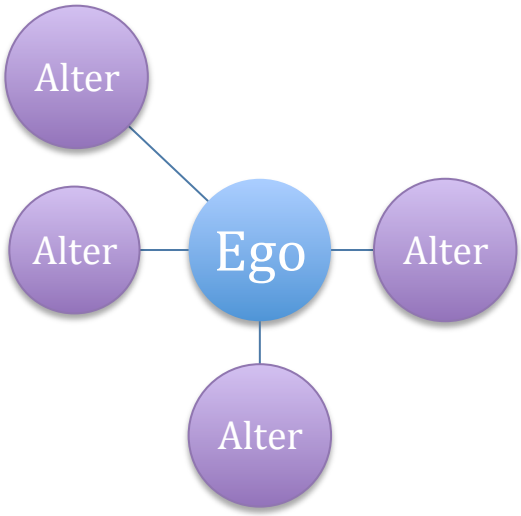
In practice, social capital is typically measured using some form of social network analysis. With its origins in 1930s graph theory, contemporary social network theory can be thought of as both a research method and a philosophy that has developed organically over time, picking up on the way concepts, perspectives and approaches from disciplines as varied as mathematics, sociometry, sociology and anthropology (Brandes, Robins, McCranie and Wasserman 2013):

> "The approach seeks to describe social structure in terms of networks and to interpret the behavior of actors in light of their varying positions within social structure. Emphasis is on constraints placed by social structure on individual action and the differential opportunities - known variously as social resources, social capital, or social support - to which actors have access" (Fine and Kleinman 1983: 436)

Broadly, social networks are the ties, or *alters* an individual (known as *ego*) can count as contacts. More abstractedly, a social network can be thought of as a series of 'nodes' connected by lines, as illustrated in figure 3.1. Each node is an actor (that is, an individual, firm or other collectivity) and each line represents a relationship of some type (for example, affect, influence etc.). Network theorists aim to explain empirical observations and predict social phenomenon by analyzing the pattern of links between actors. The theory rests on the belief that the pattern of relationships among social actors in such structures constrain and enable individual and group action, and thereby impact upon social outcomes (Kilduff and Tsai 2003). Social networks and social behaviour are thought to be so deeply and irrevocably linked that the

two are “incapable of definition or sustained analysis without the other” (Breiger 1990: 6).

FIGURE 3.1 A CONCEPTUALIZATION OF A SOCIAL NETWORK



Network theorists have analysed phenomena as diverse and fascinating as the interactional components of power among members of the Mafia (Boissevain 1974), to the spread of HIV/Aids (Wasserman and Faust 1994) to the distribution of acting roles in Hollywood (Barabasi 2003). But despite its prevalence, the network analytic school is not without its detractors. The major criticisms of social network theory are that it is overly formalistic, it denies agency to individuals, and it and pays too little attention to the unobservable interests, cognitions, dispositions, affinities, ascribed statuses or other characteristics of network participants, and ignores the significance of relationships between them (Barabasi 2003; Kilduff and Tsai 2003; Erikson 2013). In other words, attributes such as social class, sexual orientation, gender, psychological predispositions and so on are rarely invoked in order to explain why people behave the way they do (Emirbayer and Goodwin 1994; Scott 2012). One of the theory’s leading proponents puts it somewhat unapologetically: “we are concerned with the proportion of isolates in a group and not with whether they are Jack and Jim or Jill and Joan” (Blau 1982: 276). Kilduff and Tsai (2003: 79) have gone as far as to declare that “to speak of personality and social structure in the same breath is as close as one can get to heresy against the established social network paradigm”.

The problem is that a purely structural approach that downplays or ignores the role of human agency can lead to misleading, contradictory or even erroneous results. This is neatly illustrated by the overreliance by network analysts on network size as a predictor of social capital. The most straightforward and obvious way to determine the level of an entrepreneur's social networks is a simple count of his or her relations with others. Using an assortment of methods, sociologists have estimated that the average American 'knows' anywhere between 200 and 5000 others (Blau 1982; de Sola Pool and Kochen 1989). On a day-to-day basis, however, because of the constraints of time, "most persons can maintain intense relations with only a limited number of people. In short, each person has what might be called a network management problem" (Boissevain 1974: 93-4). The limited subset of individuals that ego chooses to associate with comprises the volume of the personal or *social network* (Barabasi 2003).

Many network analysts believe that the more voluminous a social network, the better, particularly where entrepreneurship is concerned. Burt (2000), for example, suggested that a businessperson's social capital could be measured simply by the size of his or her Rolodex (a desktop card index used to record associates and their contact details). Indeed, many empirical studies have found positive correlations between network size and various facets of entrepreneurial activity including willingness to start a firm, survival and financial performance (Nohria 1992; Greve 1995; Jenssen and Greve 2002; van der Gaag, Snijders and Flap 2008). The way in which entrepreneurship developed among users of the Baltimore needle exchange program is one, somewhat unusual, example of the positive impact of ultra-connectivity. Needle exchange programs are designed to reduce the spread of HIV by providing intravenous drug users with free, clean injecting equipment on a one-to-one replacement basis. In their study of more than 5000 program participants, Valente *et al* (1998) found that some users emerged as 'satellite exchangers'; individuals who purposely amass hundreds of used needles from

other users, swap them for free replacements from outreach workers, and then sell them on, for a fee, back to users. The authors suggest that it was the unique social structure of the drug scene in Baltimore that facilitated the emergence of these entrepreneurs. Intravenous drug users in Baltimore are "a network of individuals linked together by the sharing of drug-using equipment" (*ibid* 1998: 91). By tracking needle return, the authors were able to map the networks of satellite exchangers, and found that these people had far larger networks than the average drug user. In fact, satellite exchangers had ties to almost ten times as many drug users as regular needle exchange participants.

There are other empirical investigations that have, however, produced contrary results, concluding that smaller networks are preferable (Reese and Aldrich 1995; Ostgaard and Birley 1996). The conflicting findings may have arisen because, as far as entrepreneurship is concerned, network size *per se* is a relatively unimportant property of networks. Hansen (1995) has argued that a more theoretically relevant characteristic is the subset of individuals who actively contribute in some way to the venture, known as the *entrepreneurial action set*. A simple count of all the individuals an entrepreneur knows does seem unlikely to be significantly linked to commonly tested variables like first year growth or survival prospects. Arguably, the volume of resources a business owner receives from their contacts is the more crucial variable. Network size simply measures the opportunity structure of a network; that is, the potential of a network to provide resources to a business owner (Hansen 1995). It does not measure whether founders are, in reality, able to make use of the opportunity structure. The reliance on network size as the preeminently valuable network variable is related to the predominant way that researchers conceive of social capital. Earlier, I noted the paucity of researchers that treat 'resources' rather than 'contacts' as social capital, and in chapter 5, I return to this point, arguing that the chief method of collecting network data – the name generator - tends to yield wider networks than is necessary.

3.7 Network diversity

It is argued here that a more effective predictor of social capital is *network composition*, also referred to in the literature as *heterogeneity* or *diversity*. A diverse network is thought to be an advantageous one because the more different types of people an individual knows, the greater the likelihood that one of them will have something they need (Stam et al. 2014). Additionally, whereas researchers have had problems systematically associating network size with firm related outcomes, network diversity has been found to affect the likelihood of embarking on a business venture in several studies (Renzulli et al. 2000; Hoang and Antoncic 2003; Witt 2004) making this measure an especially pertinent one where business owners' choice of sector is under consideration. From a theoretical perspective, a useful measure of network diversity should gauge the range of resources an individual is linked to via their contacts; in practice, proxies are used based on alter attributes such as sex, education, occupation, socioeconomic status or age, or by calculating the ratio of strong to weak ties (Tindall, Cormier and Diani 2012). In the next section, three popular ways of operationalizing network diversity - sex composition, strength of ties, and proportion of kin – are discussed.

3.7.1 Sex composition of networks

Homophily theory or the 'like-me' principle, states that human beings have an "automatic, unthinking tendency to prefer to be surrounded by people like ourselves" (White 1995: 75). The theory predicts that individuals choose to associate with others on the basis of similar characteristics like race, gender, religious or cultural values (McPherson, Smith-Lovin and Cook 2001). The old adage that "birds of a feather flock together" is certainly borne out by empirical evidence, whether it is in determining children's friendship choices (Schaefer, Light, Fabes, Hanish and Martin 2010), individuals' mate selection (Skopek, Schulz and Blossfeld 2011; Smaldino and Schank 2012) or adults' preferred confidantes (McPherson, Smith-Lovin and Brashears 2006).

Homophily theory predicts network *homogeneity*; in other words, that women's networks will be dominated by women, while men's networks will be comprised primarily of other men. Empirical evidence is abundant. For example, non-business networking organizations are known to have segregative effects: women tend to belong to groups comprised predominately of other women, while men join groups dominated by men (McPherson and Smith-Lovin 1986, 1987; McPherson and Popielarz 1992; Popielarz 1992). Parenthetically, the sex segregation of voluntary groups is thought to outstrip that of occupations and workplaces (McPherson and Smith-Lovin 1986). In one study, Popielarz (1999) found that two-thirds of voluntary associations were heavily sex segregated, and most were almost completely exclusive to one sex.

Similar results have been found in studies of entrepreneurs (Davis and Aldrich 2000; Davis, Renzulli and Aldrich 2006; Hanson and Blake 2009). Women business owners typically nominate more women than men in their networks, while men entrepreneurs tend to know other men (Brass 1985; Ibarra 1992; Ibarra 1993; Renzulli et al. 2000). Women business owners' preference for female associations has been attributed to "the actual and too often negative experience of dealing with men, or more often the perception that men would not be helpful" (McGowan and Hampton 2007: 122). This supposition is exemplified by comments from participants in previous studies. An owner of a video production company explained that "…. as both a woman and a minority I really feel we have to band together to get anywhere" (Fisher 2004: §13), while a member of a women's-only formalized business network rationalized her reasons for joining: "It's all women there and you know that you won't be laughed at" (cited in McGowan and Hampton 2007: 122).

Nevertheless, men seem even less inclined than women to select cross-sex network partners (Straits 1996; Aldrich, Elam and Reese 1997; Klyver and Terjesen 2007; Loscocco et al. 2009). For example, in Aldrich et al's (1989) comparative study of male and female entrepreneurs in the US and Italy, just

10.8 percent of men's network members were female, but two-thirds of women's network members were male. Beggs and Hulbert's (1997) study of voluntary associations in Chicago led them to conclude that even if they belong to organizations dominated by women, men will actively seek out, and form ties with other men. Chesser (1998) too found that the networks of white men business owners were more homogeneous than those of women or men from ethnic minorities.

While the diversity of entrepreneurs' networks has been extensively studied, researchers rarely account for industrial context when drawing comparisons between the sex composition of the networks of men and women business owners. Yet it is reasonable to expect that the benefit of male ties varies according to gender-type or sex-domination of business sector. Firstly, the uneven distribution of resources in male-dominated contexts makes "men more interesting to women, women less interesting and useful to other women and women fairly often unnecessary and/or burdensome to men" (Lipman-Blumen 1975: 440). As Loscocco *et al* (2009) have reasoned "if women and men continue to operate in somewhat different social worlds because of the persistence of gender hierarchy, it stands to reason that one set of network characteristics would not be optimal for both". Since the world of business has traditionally been dominated by men, men are generally viewed as the gatekeepers of valuable power, influence and information (Renzulli and Aldrich 2005). Hence, men are generally more popular than women as network members. As summed up by Renzulli and Aldrich (2005: 334), "overall, a network comprised of many female alters appears to represent a poorer strategic choice for owners and potential owners than male dominated networks, either because women cannot provide resources or because owners choose not to activate them".

Manfred Kochen (1989) argued that the selection of acquaintances is a rational choice (for a similar thesis, see van der Poel 1993). In evaluating the quality of potential matches, people invoke normative expectations of the

fruitfulness of the relationship (Kochen 1989). Networkers set goals (e.g. wellbeing, affluence, prestige, enlightenment) and structure "their social networks to achieve their goals and maximize the benefits they seek" (Ibarra 1993: 74). Because men have traditionally dominated the ownership of firms, this increases their attractiveness as network members to *all* entrepreneurs, regardless of sex or sector. At the same time, women's minority status as members of business power elites reduces their desirability as members of social networks. This explains Chesser's (1998) finding that women and minorities tend to have less homogeneous networks than white men, and Ibarra's (Ibarra 1992: 425) assertion that "preferences for homophily and status will tend to coincide for men and exist in competition for women". Similarly, in Mehra et al's (1998) study of the friendship networks of a prestigious MBA program, they found significant levels of sex homophily, but for women, homophily was induced by their lower levels of attractiveness as associates to males. The authors concluded: "the marginalization of women resulted more from exclusionary pressures than from their preferences for women friends" (Mehra, Kilduff and Brass 1998: 447).

The job seeking literature has shown that male ties are especially useful where women are seeking work or promotions in traditionally masculine occupations (Stoloff, Glanville and Bienenstock 1999; Kmec et al. 2010). Similarly it could be argued that in any context where resources are unevenly distributed, it is in the interests of members of minority groups to network with members of majority groups, rather than among themselves: "it is practically a psychological truism that individuals identify with other individuals whom they perceive to be the controllers of resources in any given situation" (Lipman-Blumen 1976: 16). At the same, there is no logical reason for majorities to forge ties to minorities; instead, as famously argued by Blau (1977) members of majority groups can only gain instrumentally by networking *within*-group. The challenge for those seeking to enter business sectors in which their 'group' is underrepresented, is thus how to convince members of the majority to become network members, and thereby gain access to their resources.

Secondly, gender role orientation is known to affect women and men's social predilections. Early research showed that women pursuing nontraditional careers tended to report a large number of males among their close friends (Auster and Auster 1981). Reeder (2003) compared 279 subjects' scores on the Bem Sex Role Inventory (a widely used gender schema instrument that measures degrees of femininity, masculinity and androgyny) with their friendship choices and found that men and women that scored highly on femininity reported a significantly higher percentage of female friends than masculine or androgynous people. Similarly masculine people had more male friends. And, feminine men had more cross-sex friendships than masculine men and masculine women had more cross-sex friendships than feminine women. In contrast, however, Simpson (2004) has argued that intensified fears of feminization lead men working in female-typed fields to do considerable 'gender work' to restore a masculine image, driving them to prioritize their relationships with other men.

Thirdly, tendencies toward homophily may be weakened or intensified by opportunity structures (Buhai and van der Leij 2006; Kossinets and Watts 2009). Put another way, "structural differences in the networks within which men and women are embedded severely constrain individual actions from affecting personal network sex composition" (Feld 1982: 353). In some contexts – such as an all-female high school – homophily is inevitable. Lincoln and Miller's (1979: 196) case study of friendship ties in one firm concluded that the composition of organizations "restricts the freedom of individuals to withdraw from one set of ties and position themselves in another so that individual preferences for 'homophily' exercise little influence on network form". McPherson and Smith Lovin (1987) distinguished between 'choice homophily' – the result of personal preferences - and 'induced homophily', arising from the availability of similar others[5]. In their study of voluntary

[5] Others have distinguished between inbreeding and baseline homophily (e.g. McPherson, M. and L. Smith-Lovin (1987) and Buhai, S. and M. van der Leij (2006)

associations, they found evidence of both types, but same-sex associations occurred primarily because of induced homophily. In that study, women tended to associate with other women because they belonged to all- or majority-female voluntary associations. These studies suggest that the very segregation of industries and occupations is likely to affect women and men's network composition.

In summary, while individuals are said to prefer to associate with members of the same sex, the literature suggests that the benefit of, availability of, and preference for men as network members are increased in sectors where men form the majority. On the other hand, in industries where women are concentrated, the value of women as network ties increases. However, men in female-dominated industries do not seek out women as network members because the advantage of women ties is tempered by men's general longevity in the business world and men's preferences for homophily. These propositions give rise to the following hypotheses:

H3a: Aggregated across sectors, men owners have networks that significantly more homogeneous than those of women owners.

H3b: Women owners in female-dominated industries have networks that are significantly more homogeneous, compared to women owners in male-dominated industries.

H3c: There is no difference in the homogeneity of the networks of men owners in female-dominated industries, integrated and male-dominated industries

3.7.2 Sex composition of networks and resource acquisition

From a social capital perspective, sex diversity is only an important network property if women and men ties provide access to different types of resources. It is argued that sex differences in the possession of resources is driven by women and men's occupation of differential positions in the labour market; in other words, occupational segregation. This proposition has been put to the test in numerous studies of job hunting and workplace negotiations. The

findings are unambiguous. For women, using information gleaned from at least one male alter is associated with a greater probability of working for pay (Stoloff et al. 1999; Erickson 2004), attaining jobs of higher occupational status and prestige (Lin 1982; Brass 1985; Beggs and Hurlbert 1997; McDonald et al. 2009; McDonald and Day 2010; McDonald 2011a, 2011b; Son and Lin 2012), and attaining jobs in male-dominated sectors (Hanson and Pratt 1991; Drentea 1998; Straits 1998; Stoloff et al. 1999; Mencken and Winfield 2000; Kmec et al. 2010). For example, in his well-cited network analysis of employees in one publishing company, Brass (1985) found that, despite occupying more central positions within the organizational structure, because of their low levels of interaction with male colleagues, women had limited influence and fewer opportunities for promotion.

One interesting study has linked *educational segregation* with the gender pay gap. Belliveau (2005) collected data on the number and value of the salary offers received by 83 graduating seniors from three elite liberal arts colleges (two-all female and one mixed), and the size and heterophily of their job advice networks. Women graduating from all-female colleges had lower network heterophily, but despite having similar Grade Point Averages (the most common measure of academic achievement used at US colleges and universities), they also received significantly lower salary offers than women from the mixed sex school, even when demographics, human capital and school reputation were held constant. Belliveau concluded that educational segregation allows employers to offer women lower starting salaries because a gender pay gap is less likely to be detected where women have fewer opportunities to make cross-sex pay comparisons. Belliveau calculated that actual and perceived network homogeneity translated into a 9 percent wage penalty for women-only college students.

Studies on voluntary associations have shown that involvement in highly sex-segregated organizations inhibits women's access to resources because women simply do not hold enough resources to share. 'Segregative sorting'

“acts to maintain the status differences that such segregation implies, by creating networks of weak ties that restrict men’s and women’s information and resources to the domains that are traditional for each” (McPherson and Smith-Lovin 1986: 77). For instance, in a study of nascent entrepreneurs in North Carolina, Davis and Aldrich (2000) found that membership in male-dominated voluntary associations increased access to loan assistance for men, but had no effect for women business owners. In summing up their inquiry into the friendships of men and women IT workers, lawyers and middle managers, Markiewicz *et al* (2000: 177) concluded that "seeking out and investing in women as close work friends may not be a wise strategic choice for those most ambitious in their professions". It has been argued that female-only networks are particularly detrimental for women entrepreneurs operating in male-dominated sectors (Sappleton 2012). McGowan et al (2007: 119) argue that all-female networks are appropriate for women-owned lifestyle businesses, but larger business enterprises require “an extension of and a commitment towards the use of a mixed gender network”. Twenty years earlier, Aldrich (1989: 128) too argued that women entrepreneurs seeking to compete on an even playing field with men “must break into the ‘old boys’ network by deliberately invading male turf however possible… with… most of the major corporate and financial centers of power controlled by men, sex-segregated separate networks are a decided handicap for women”.

Together, these studies suggest that women are less useful to nontraditional women owners as resource holders than they are to traditional women. Erickson (2004: 28) puts it succinctly:

> “If social capital consists of the resources embedded in one’s network, and if men and women have typically distinctive resources, then contacts with men are a different form of social capital than contacts with women. It is not that ties to men are better or worse social capital, but rather that ties to men are more useful social capital for the kinds of resources men tend to control and ties to women are better social capital for the kinds of resources women tend to control”

Based on this proposition, it is hypothesized that:

H4a: Nontraditional women owners that have female-dominated social networks acquire a lower volume of resources than nontraditional women owners with mixed-sex networks.

3.7.3 Sex composition of networks and gender stereotyping

A purely network-based approach to examining the literature above would generate the conclusion that non-traditional women, who network with men to a greater extent than they do with women, should obtain a larger proportion of instrumental resources than women in traditionally female sectors. However, this approach assumes that resource accessibility and resource appropriability are one-and-the-same. However, the literature that is examined below suggests that nontraditional women may face greater challenges in mobilizing resources for two reasons. Firstly, because individuals prefer to share resources with members of their own group, and secondly, because nontraditional women experience heightened levels of gender stereotyping.

Social similarity is said to increase levels of liking, trust, understanding and attraction between associates, leading to better communication and greater predictability of behaviour (Aldrich et al. 2002). As Almack (1922: 52) remarked:

> "The clerk, the artisan, the street laborer work by and with those that are assigned to places by them, and perhaps it never occurs to them, and never to the employer that the inefficiency and discontent that pervades the establishment may be due to mal-adjustment of co-operating or contiguous individuals and groups. Homogeneity is one of the requisites for efficiency in socialization"

It is therefore unsurprising that studies show that resources are more likely to be distributed within-group when members of a group share a common identity or a sense of regard, are friends, perform interdependent tasks or share demographic attributes (Anderson and Miller 2003). It is because of this that same-sex entrepreneurial teams are said to enjoy higher sales volumes (Fertala 2005). So, even where the rational woman entrepreneur actively seeks ties with men, knowing that they hold the resources she requires,

paradoxically, she may be more successful in extracting resources from women ties. Because in-group networking partitions the pool of human, economic, informational and social capital available to members, it is thought to be one of the major causes of inequality (Blau 1977).

Additionally, there is evidence in the literature that incidents of stereotyping and discrimination vary by sex of interactant. This is an important observation because the gender-type of industries and occupations not only affects the gender of the incumbents, but also the gender of those other individuals with whom they come into contact. For example, in organizations in male-typed industries, employees are likely to be men; in female-typed workplaces, subordinates will be women. In some gender-typed sectors, customers are also likely to be of one gender (childcare centres are a good example). One body of evidence suggests that the negative evaluations of women in gender atypical roles are stronger among men than women (Kauppinen-Toropainen and Lammi 1993; Gunnarsson 2001). For this reason, Gutek and Cohen (1992) have argued that comparing stereotyping between workers in traditional, non-traditional and gender-neutral jobs is not enough, because the degree to which jobs involve contact with the same and opposite sex differs. In one survey, they found that women who worked in a nontraditional job and spent time working with men experienced more social-sexual behaviours (harassment, sexual overtures, objectification, obscenities) than women who had traditional jobs but worked with other women and women who had traditional jobs and also worked with men. Similarly, workplace segregation has been linked to employee wellbeing: women's job dissatisfaction and stress increases as the male share of the workplace increases (Bender, Donohue and Heywood 2005).

Suseno (2008) contends that sex differences in gender prejudices occur because men are rarely exposed to women in positions of responsibility. Men who have only worked with women in entry-level positions are given to form the impression that women are low in capability and low in expertise. Read

(1998) uses this argument to advance a theory about women's difficulties in obtaining loans from (men) lenders: since women in banking tend to be recruited to the lower, clerical positions devoid of credit granting authority (Katz, Stern and Fader 2005), men bank managers will have had limited experience in working with high-powered women, and may therefore hold more traditional views about the proper role of women in society. This explains why some believe that women may have better luck in obtaining bank and venture capital funding from other women (Fielden et al. 2003). As Fisher (2004: ¶ 19) puts it: "The last frontier in financing for woman-owned businesses is venture capital, which still goes mostly to men. That's mainly because there are so few female VCs".

One recent study has suggested that the association between stereotyping and social networks could be very direct. Lyons et al (2008) examined how stereotypes are transmitted in large groups. Because of the degree of interconnectedness in societies, theoretically, stereotypes can be transmitted from one person to another until no further ties exist and all members of society have been exposed. Yet in experiments, the authors found that some stereotypes spread more easily, and faster than others. Information that is linked to already shared knowledge or some common ground, or that is likely to promote more positive interpersonal relationships between group members ("stereotype consistent information") is the type of information that is most likely to spread. Stereotype-inconsistent information that undermines relationships or is otherwise "interpersonally risky" is less likely to spread. This is not exactly a novel conclusion: others have shown that information that reinforces, rather than disconfirms, prior beliefs is more easily recollected in memory (Brush et al. 2004; Hoobler, Wayne and Lemmon 2009). For example, Rhode (2003) showed that lawyers more easily remembered times when female colleagues were late than the times they worked late. The more interesting point about the Lyons et al (2008) study is that the authors found that for stereotypes to be maintained and transmitted efficiently, social networks should be homogeneous (because people pass on information they

think others already believe) and connected by weak ties (because simple information, or "small talk" can pass easily through weak ties, but complex information requires strong ties and repeated interactions). Although these conclusions were based on laboratory experiments, the implications for the current thesis seem obvious. Male-dominated networks bonded together by culturally shared lore may find it difficult to acquiesce to new members whose behaviours and successes undermine the implicit beliefs on which their connectedness is built. Evidence has already been presented that men entrepreneurs tend to have networks that are more homogeneous and weaker than those of women entrepreneurs. Thus, if Lyons et al's (2008) theory is correct, it can be expected that men, rather than women, hold stronger gender stereotypes about women in male-typed industries[6].

On the basis of these studies, it is hypothesized that:

H5: Nontraditional women owners that have male-dominated social networks experience greater perceived discrimination than nontraditional women owners with female-dominated or mixed-sex networks

3.7.4 Strength of ties, resource acquisition and gender stereotyping

The 'strength' of a tie depends on the intensity, affect and reciprocity of a relationship and varies from weak to strong (Cross and Lin 2008)[7]. Strong ties

[6] It should be noted that there is a small body of research that concludes that it is women, rather than men, that hold stereotypic views about the role of women. In her famous work Kanter (1977) argued that discrimination was related to the relative proportion of majority and minority groups. The theory goes that where women are underrepresented, being female is viewed as a negative status indicator among other females. Because of the competition for limited slots, women are harsher critics of each other where they are a minority in an organization. Ely's (1994) study comparing the relationship between junior and senior women in male-dominated and sex-integrated law firms offers support for the theory. Compared with women in sex-integrated firms, women in male-dominated firms were more competitive, rated women partners more negatively, and junior women were less likely to identify with senior women as a source of validation and support. Furthermore, women in male-dominated firms saw senior partners' authority as less legitimate and attributed their success to their sexuality.

[7] 'Strong' and 'weak' ties are now the norm in network parlance but there are several ways to distinguish ties based in intimacy and affect levels. For example, Boissevain (1974) distinguishes between the personal cell; intimate zones A and B (active and passive relations); effective zone (persons important for pragmatic reasons); minimal zone (acquaintances that mean little) and the extended zone (persons ego may recognize but not remember).

are those individuals with whom we have the closest relationships, such as spouses/partners and friends. Weak ties are contacts with whom we are less close, even if we associate with them relatively frequently, like neighbours or work colleagues (Marsden and Campbell 2012). Granovetter (1973) established that, while individuals may perceive that strong ties are their most important relationships, when it comes to attaining resources, (Granovetter's example was job seeking), it is weak or distant contacts, such as friends-of-friends, that are the most useful. Weak ties increase individuals' access to information and resources because the opportunity to form ties with dissimilar others improves the likelihood that one can obtain unique or 'nonredundant' information – that is, information that could not be obtained from another source. *Ceteris paribus*, "someone with a small set of overlapping ties is at a disadvantage when competing for information with someone with a large set of divergent ties" (Aldrich 1989: 111). To give an example of how the theory might work in practice, new entrepreneurs typically ask their friends and family (strong ties) and acquaintances (weak ties) to become customers. In turn, these individuals may tell their strong and weak ties about the new venture. Since friends and family of the entrepreneur are likely to have friends and family in common it is the acquaintances that can most effectively expand the customer base.

The literature offers strong empirical support for the 'strength of weak ties' theory (Granovetter 1982). Most studies have re-tested the theory in the context of job hunting. Using weak, rather than strong ties is associated with attaining jobs that are higher in prestige (Lin 1982; Son and Lin 2012), position (Brass 1984; Marsden and Hulbert 1988) and pay (Bridges and Villemez 1986; Boxman, De Graaf and Flap 1991; Podolny and Baron 1997). This is because weak ties bridge social distance so that individuals in lower socioeconomic groups are able to reach upwards in status hierarchies (Lin, Vaughn and Ensel 1981b; Lin and Dumin 1986). This type of social capital, which links people across social cleavages is commonly referred to as *bridging social capital* (in contrast, ties which are inward-looking and reinforce

a sense of identity between members of the same group are known as *bonding social capital*) (Lin 1990).

In the context of entrepreneurship, the use of weak ties has been associated with a number of positive business outcomes including the ability to secure investment (Elfring and Hulsnik 2001; Shane and Cable 2002) and other resources (Anderson and Miller 2003; Crowell 2004). Weak ties play a crucial role in the diffusion of innovations and ideas - viral marketing depends on them (Gladwell 2002) and the "technological dynamism" of Silicon Valley has been attributed to the strength of weak ties (Liao and Welsch 2001: 324). Others suggest that the role of strong ties in entrepreneurial networks has been underestimated. Based on interviews with over 1700 business owners in Munich, Brüderl and Preisendorfer (1998) found that support from a spouse or a life partner is associated with business survival to a greater extent than support from weaker ties. In an effort to reconcile the debate, Elfring and Hulsnik (2001) proposed a role for both strong and weak ties: they view weak ties as the driver for opportunity recognition and legitimacy gains, whereas strong ties facilitate the ability to gain cognitive legitimacy through association, and acquire resources at below-market costs. This is because weak ties may hold more diverse resources, but strong ties may be more willing to actually provide them. Elfring and Hulsik's argument is supported by other empirical studies (Uzzi 1996; Jenssen and Greve 2002; Carter et al. 2003; Bhagavatula, Elfring, Tilburg and Bunt 2010) which are suggestive of an N-shaped relationship between proportion of weak ties and social capital resources acquired. In other words, weak ties are important, but their utility decreases as they begin to crowd out strong ties that may be more willing to provide resources.

Researchers have offered alternative explanations for the conflicting findings on strength of ties. Granovetter (1982) argued that weak ties are less advantageous for those in 'insecure' or low status positions in their networks. In business, women often find themselves in insecure positions, particularly

where they find themselves in the minority. As such, they may find strong ties to be more beneficial than weak ties. Ibarra (1997) showed that strong ties were beneficial for women managers in Fortune 500 firms because they helped them to compensate for their low status and illegitimacy. Comparing network, background and performance data on 284 senior managers in large American electronics firms, Burt (1998) found that although men with 'entrepreneurial networks' (that is, those rich in structural holes) were better able to secure early promotions, women benefited from small networks composed of densely interconnected contacts. Because of their low levels of legitimacy, women could only get ahead at work by 'borrowing' social capital from strong ties that had entrepreneurial networks and who acted as sponsors or mentors. In the context of job hunting, Mencken and Winfield (2000) found that for women, a weak tie to man was more effective than a weak tie to a woman in finding jobs in male-dominated sectors. All in all, this literature is not suggestive of sex differences in use of strong and weak ties *per se*, rather, sex differences occur where women and men differ in status.

There is one important theory that suggests an opposite conclusion to Burt and Granovetter's. Lin's (Lin, Ensel and Vaughn 1981a; Lin et al. 1981b; Lin 1982, 1990, 2000, 2001, 2008) structural theory argues that unequal societies are pyramidal and hierarchical networks of persons whose positions are ranked according to wealth, status and power. As the pyramid shape suggests, there are more positions at the bottom of the network, and relatively few at the top, but those in higher positions have a greater command of social resources. It is a truism that people know more people who are similar to them. In other words, high status people know other high status people, and low status people know low status people. According to Lin's theory, the higher an individual's social position, the better the social resources they are able to reach through a strong tie (since strong ties are likely to be at a similar position in the structure). Conversely, weak ties allow individuals located at the lower echelons to access better social resources because they will be reaching upwards through the structure. Lin's theory suggests an interaction

between strength of ties and strength of positions: the lower the initial position, the greater the effect of weak ties over strong ties on instrumental action. Again, support for this hypothesis can be found in the literature on social mobility and job seeking. For example, as noted earlier, women can find better (that is, more highly paid and higher status) jobs if they obtain leads from men, rather than from women.

To summarize, the literature is indicative of status differences in use of social resources, rather than sex differences. However, the findings are conflicting. Ibarra, Burt and others suggest that low status individuals benefit more from the use of strong ties because weak ties are unwilling to extend resources to those deemed to be illegitimate. Lin's theory suggests that, where women and men are high in status, they should be able to successfully use strong ties. Where women and men are low in status, weak ties should provide more of the resources they require. Women and men are likely to be higher in status where they are viewed as competent at their roles; which in turn is related to gender congruency, longevity and representation. That is, women owners are accorded higher status in traditionally female, women-dominated sectors.

The literature also indicates that stereotyping is reduced where relationships are close. Sociologists distinguish between two basic types of interaction – which Granovetter (1992) termed *arms-length* and *embedded* transactions. Arms-length transactions are those short-term or one-off exchanges that take place between strangers and that are conducted without emotion or personal involvement. Embedded transactions are those emotionally involved, trusting interactions that are repeated over time, such as when a business owner uses the same accountant (Uzzi 1996). Stereotyping is thought to occur less frequently in the latter type of interaction, because – as homophily theory dictates – those relationships are generally characterized by "joint biography and social similarity" (Heimer 1992: 160).

Additionally, economic game theory has demonstrated that symbolic capital rarely develop where patterns of relations are episodic, transient or particular, and emerge more easily where transactions between actors are recurrent, routinized, or interdependent (Sheppard and Sherman 1998; Sobel 2002; Smith and Lohrke 2008). Gutek (1997) adds that one-time encounters foster stereotyping because parties only have visible characteristics on which to base judgments of others. In long-term relationships, there is little room for making stereotypical judgments because over time interactants have witnessed a large sampling of the other's behaviour. For example, if a businesswoman tells a client, "I'm running late because I've been up all night with a sick baby", a long-term client is less likely than a one-off customer to make a gender stereotypical assessment about the woman's capabilities.

> "Being stereotyped is a particular concern for encounter providers and customers. Because each interacts only once with the other in encounters, providers and customers do not even have the opportunity to counteract stereotyping the way a provider can with a coworker or manager, or the way both provider and customer can with the 'regular' customers or provider in a service relationship (Gutek 1997: 67).

The concepts of *arm's length* and *embedded transactions* mirror the notions of weak and strong ties in network parlance. Strength of tie is a good proxy for relationship type because strength of tie is determined by relationship length and intensity, and frequency of interaction. These studies suggest that while traditional women may be able to draw on the resources of strong and weak contacts, nontraditional women will have better success in obtaining resources from strong, than weak ties. In accordance with this literature, the following hypothesis is advanced:

H6: Women in male-dominated industries obtain a greater proportion of resources from strong ties than women in female dominated industries.

3.7.5 Proportion of kin

Kinfolk are ties that are related to one another by blood or common ancestry. The proportion of kin in a businessperson's network is important for several reasons. Firstly, it has been argued that kinship ties are of less instrumental

use than weak relations (Fischer 1982a; Anderson and Miller 2003; Ozgen and Baron 2007). Kin are said to hinder entrepreneurship because business owners rely on family as 'stress-relievers' rather than sources of instrumental support (Curran and Blackburn 1994) or because family members provide entrepreneurs with uncritical support that gives them unrealistic expectations about their odds of success (Jenssen and Greve 2002; Diaz-Garcia and Carter 2009). Entrepreneurs may include kin in their personal networks out of a sense of moral obligation, but counting them may crowd out those who are better endowed with business acumen (Renzulli and Aldrich 2005). Importantly, common family origins increase redundancy of information; the homogeneity of relatives' social circles spawn lower levels of fresh information and resources that businesspeople can put to use in their firms (Renzulli et al. 2000).

Others have argued that family members are important sources of social capital for entrepreneurs; often by providing practical assistance in the day-to-day running of the business (Verheul, Stel and Thurik 2006). But research shows that this differs according to sex of owner. Women often play an unequal, supportive role in their husband's business operations (for example, doing unpaid bookkeeping or other clerical tasks) even where they are listed as co-owners, or so-called *copreneurs*. Conversely, men are rarely involved in their wives' firms, but in some cases they may offer technical support, in a reflection of traditional gender roles (Rowe and Hong 2000; Lee, Hong and Rowe 2006; Gudmunson, Danes, Werbel and Loy 2009Duberley, 2013 #1284; Jimenez 2009; Matzek, Gudmunson and Danes 2010). Analysis of the support of husbands in their wives firms is often absent from studies of women's entrepreneurship, but one study has demonstrated links between husband's business knowledge, experience and help with childcare with women's uptake of self-employment (Caputo and Dolinksy 1998).

There have been several studies examining sex and kinship connections, in both business and nonbusiness populations. With just a couple of exceptions

(Aldrich et al. 1997; Klyver and Terjesen 2007), women's social networks have been found contain a greater proportion of kin than do men's, whose interpersonal connections extend further beyond their immediate social circle (Fischer 1982; Marsden 1987; Campbell 1988; Moore 1990; Wellman and Wortley 1990; van der Poel 1993; Allen 2000; Renzulli, Aldrich et al. 2000; Greve and Salaff 2003; Renzulli and Aldrich 2005; Klyver and Terjesen 2007; Garcia and Carter 2009; Loscocco, Monnat et al. 2009); a situation that has barely changed in forty years (Booth 1972; McPherson et al. 2006), reflecting the stasis of traditional gender roles in the family (although the extent of the difference may vary across the life course (Munch, McPherson and Smith-Lovin 1997))[8]. Few studies have assessed use of family networks according to *type* of business, but Anna *et al* (2000) report that women business owners in nontraditional business sectors found positive encouragement or persuasion from friends and family crucial when making the decision to turn their entrepreneurial intentions into actuality. The gender stereotyping literature shows that stereotyping is reduced if ties are aware of individual's levels of competence, suggesting that close confidantes are more likely to offer support to individuals pursuing unusual interests than weaker ties (Suseno 2008). As Loscocco et al (2009: 392) speculate: "kin support might be particularly important to women owners as they navigate an arena that is still less typical for women than for men". Thus, it is hypothesized that nontraditional women owners rely on the support of kin to a greater extent than traditional women owners. Stated formally:

H7a: In the aggregate, women business owners obtain a greater proportion of resources from kin than men business owners

[8] The common observation is that women have a higher proportion of kin in their networks, although more recent work by McPherson *et al* (2006) suggests that women still have significantly more kin, but because they no longer have fewer non-kin confidants than men, they no longer have a higher proportion of kin in their networks. It is men's shrinking connection with non-kin, not women's greater connection to the world outside the family that is prompting this change.

H7b: Women owners in male-dominated sectors obtain a greater proportion of resources from kin than women business owners in female-dominated business sectors.

3.8 Cultural capital and resource acquisition

In chapter 2, it was noted that women are establishing businesses in male-dominated sectors at a quickening rate, and their businesses are, from a financial standpoint, highly successful. Given that the hypotheses presented thus far suggest that nontraditional women face networking barriers, it is necessary to explore the ways in which women operating businesses in non-traditional industries overcome networking barriers of reduced support in order to obtain resources.

Education and employment influence social networks and social capital because workplaces and educational facilities are important arenas where future entrepreneurs forge some of their most crucial associations. The peak age for starting a firm is the mid-30s to mid-40s – nontraditional entrepreneurs may be even older (Sappleton 2009) – so the period of time spent in paid and unpaid activities prior to start-up can be critical. For instance, entrepreneurs with previous experience in a similar industry may possess networks clustered around friendships with former colleagues, clients or employers (Shaw 1997). This can be beneficial: for example, entrepreneurs have been known to poach their staff or client base from a previous job (Anderson and Miller 2003).

The *type* of education and work experience an individual has attained determines the type of people with whom they associate. Studies that have compared men and women business owners show they generally have similar levels of education (Menzies et al. 2004; Robichaud et al. 2007) but there may be differences in education levels according to the gender-type of the firm. A recent European study shows that self-employed females in male-typed fields have the lowest average level of completed years of education, at 10.20 years

(Sappleton 2009). Traditional men (who work in similar sectors) had a comparable level of education, having completed 11.81 years of schooling; there was then a large jump – women and men in female-typed fields had completed 14.26 and 16.45 years of schooling respectively. This difference is potentially important because higher education levels are linked to networks that are more heterogeneous and wider ranging and comprised of lower proportions of kin (Liao and Stevens 1994; Bekkers, Volker, van der Gaag and Flap 2008).

The literature suggests that women and men continue to follow gender-typed educational programs, particularly at university, that women have less business-oriented education and training and men tend to have more directly relevant education (Still and Timms 2000; Menzies et al. 2004; National Center for Education Statistics 2009). Moreover, women are much more likely to have worked in sex-segregated employment than men, which increases their work-based associations with women. For instance, Hellerstein et al (2007) observed that in 2000, the average woman worked in an establishment with a workforce that was over 60 percent female, but men worked in establishments that were around 40 percent female.

Because of career interruptions caused by childrearing, women start businesses with fewer years of work experience. They are less likely to have had experience in management, particularly at the upper levels, meaning that they may bring to business ownership fewer, and less relevant powerful network ties than males. Women are much better represented in management positions in female-typed fields like retail (Weeden and Sorenson 2004), but this may be ineffective in providing access to contacts necessary in male-dominated areas. The upshot is that when women attempt to start businesses in nontraditional sectors, “they face a ‘network deficit’ in competing with men who have enjoyed direct access to the power in organizational hierarchies” (Aldrich, 1989: 118). Thus, the literature suggests that occupational and educational segregation reduces the heterogeneity of social networks. Since

men tend to follow business and scientific educational programmes, those who set up firms in male-dominated sectors have greater opportunities to build relations with other men prior to start up. Women are less likely to be able to forge opposite-sex associations unless they have a male-typed educational background or have worked in a male-dominated occupation or establishment. Based on this reasoning, the following hypotheses are offered.

H8a: Nontraditional women that have a male-typed or neutral education have networks that are more heterogeneous than nontraditional women that have a female-typed education.

H8b: Nontraditional women that have previous experience in the industry have networks that are more heterogeneous than nontraditional women that have no experience in the industry.

Sector-relevant knowledge is also important because it signals competence to resources holders and may thereby motivate them to provide resources. This proposition is summed up in Bekkers et al's (2008: 191) claim that "it takes human capital to take advantage of social capital". Stakeholders may be more swayed by a nontraditional woman who has previous industry experience, carries personal repute in the field or other impressive credentials (Marlow 1997). Previous experience in a male-typed area also acts as a signal of symbolic capital that may serve to reduce gender stereotyping against nontraditional women (Baum and Silverman 2004). Viewed from the other perspective, an entrepreneur without relevant labour market experience might be more likely to become aware of entrepreneurial opportunities, source of supply and customers if she has the 'right" network of contacts in relevant markets. Therefore, women that have experience in a male-typed field obtained a male typed education and/or work experience in a similar field are expected be able to signal their legitimacy to male ties to a greater extent than are women without this experience. From this literature is derived the following hypotheses:

H8c: Nontraditional women that have previous experience in the industry perceive less discrimination than nontraditional women with less relevant experience.

H8d: Nontraditional women that have previous experience in the industry are more successful in obtaining resources than nontraditional women with less relevant experience.

3.9 Alternative theories: Attribution augmenting and shifting standards

This chapter proposes that women entrepreneurs face unique challenges and barriers when they establish firms in industries that have traditionally been dominated by men. Accordingly, I have hypothesized that women business owners in sectors traditionally dominated by men will suffer gender stereotyping in their interactions with weak ties, and with men in particular; and that this will have a detrimental impact on their ability to acquire business resources. This chapter would be incomplete, however, if I did not take the time to consider the possibility of an alternative outcome. Because women's roles have undergone considerable changes in recent years, beliefs about women may also have changed (Sczesny et al. 2008). Cross-temporal meta-analyses have shown that perceptions of women's assertiveness follows similar patterns as their status and roles: increasing from the 1930s when they began replacing men in the factories, decreasing postwar when they returned to the traditional homemaker role, and increasing again after the 1960s. Beliefs about men, however, have been much more stable (Sczesny et al. 2008). Thus, it is possible that nontraditional women entrepreneurs might reap certain rewards, rather than suffer disadvantages, because of their token status. There are two theories worth mentioning that suggest that, because of their novelty, nontraditional women may enjoy the advantages of a kind of 'positive discrimination'.

Baron *et al* (2001) have documented evidence that some women entrepreneurs benefit from processes of *attributional augmenting*. Attributional

augmenting describes the process by which, when a particular behaviour occurs in spite of the presence of barriers that should hinder it, facilitating causal factors are augmented. In other words, in view of the stereotype that women are unsuited to entrepreneurship, where women actually succeed in becoming entrepreneurs, factors influencing their behaviour (their motivations, abilities, interests, desires and so on), are perceived in a more favourable light by observers. To test the theory, Baron *et al* (2001) asked employed adults to examine photos of women and men entrepreneurs and managers (these groups were chosen because entrepreneurs face greater barriers to success than managers). When women were described as entrepreneurs, they received significantly higher ratings on decisiveness and career seriousness; they were rated as less feminine, but more attractive and less vain. Furthermore, women's success was attributed less to luck and more to ability when they were described as entrepreneurs compared to managers, and varying the description of the stimulus person from manager to entrepreneur exerted a stronger effect on ratings of women than on ratings of men with regard to assertiveness and decisiveness. The authors concluded that women benefit to a greater extent than men by assuming entrepreneurial roles because these roles are less common for women. Extending this logic, attributional augmenting may occur where, in the face of gender stereotyping, lack of role models, access to finance and other obstacles, women enter business ownership in male-dominated sectors, leading to enhanced perception of them with respect to their personal characteristics and drivers of their success.

An alternative theory - the 'shifting standards model' - has been offered by Biernat and colleagues (Biernat and Kobrynowicz 1999; Biernat and Fuegen 2001). According to this theory, when individuals are judged on group-stereotyped subjective dimensions, they are compared only to within-category reference points. That is, women are compared to other women, and men are compared to other women. For example, when an observer describes a woman as 'tall', this conjures up an image of someone who is different in feet

and inches to a 'tall' man. Thus, the authors argue, evaluations of men and women are not directly comparable.

When perceivers judge individuals on subjective scales, they adjust the end anchors of the scales so as to reflect the expected distribution of group members on the attribute being judged. On subjective dimensions such as competence, women may be held to lower standards than men. Because the standards for women are lower, more evidence is required to confirm a woman's competence in a male-typed field; this explains why women in nontraditional occupations frequently state that they have to work twice as hard as male colleagues to be professed as half as good (Sappleton and Takruri-Rizk 2008). The shifting standards theory also explains why competence is deemed to be context specific: women are generally seen as more competent than men at 'feminine' tasks (e.g. childrearing), while men are considered more competent at so-called masculine tasks (e.g. auto repair). Additionally, Biernat and colleagues seem to suggest that it is other women, rather than men, that judge women in leadership positions more harshly. Because of the zero-sum nature of women's positions in organizations, women employers devalue other women's assertiveness. This is a deliberate strategy to reduce the dissonance they feel about not being assertive themselves – these women know it is necessary to be exceptional in order to succeed. Thus, this theory would suggest that in entrepreneurship, women business owners are compared to other women business owners, rather than men. Women in male-typed sectors may be evaluated more positively on subjective attributes like competence than women in female-typed sectors, particularly by other males. There is, so far, no empirical evidence to support attributional augmenting or shifting standards theory in the context of male-dominated business ownership[9]. This thesis offers a chance to explore their predictions.

[9] In the early 1980s, when it was more unusual for women to operate firms, Goffee and Scase Goffee, R. and R. Scase (1985). Women in Charge: The Experiences of Female Entrepreneurs. London, Allen & Unwin. identified a group of women business owners – termed 'Innovators" who rejected traditional gender ideals and operated 'unconventional

3.10 Summary of hypotheses

In order to obtain a given resource, entrepreneurs must be able to access the holder of the resource and motivate the holder to provide the resource. By collecting data on the morphological patterns of linkages between actors, conventional network analysis typically measures the first part of this equation – resource accessibility. The literature examined in this chapter suggests that, while network composition affects the ability of business owners to *access* resources nontraditional women business owners' struggle to secure finance, custom, information and other valuable resources might be encumbered by gender stereotypes. If supported, the hypotheses presented above would allow us to build up a 'story' to account for women entrepreneur's underrepresentation in male dominated sectors. It is proposed that, in anticipation of gender stereotypes, nontraditional women owners carve out networks comprised of other women. Relying on associates of the same sex is detrimental to women because women are underrepresented in areas that house the resources necessary for entrepreneurial survival and success. Commercial loan officers, venture capitalists, suppliers and so on are predominately male. Consequently, nontraditional women business owners must include men in their close networks.

Yet, stereotypes about women in business are perennial, pervasive and deeply embedded in the fabric of society. Women entrepreneurs violating gendered norms may be particularly hindered because "a potential for prejudice exists when social perceivers hold a stereotype about a social group

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enterprises'. Some of the statements these women gave in interviews with Goffee and Scase are supportive of the conclusions of the shifting standards/attributional augmenting perspectives. For example: "Being a woman in a man's world… it's a great advantage over some of my male colleagues... I find that I get a better deal… It's because I'm a woman – they don't see many women around and so they like to come along and chat me up… and you get a better deal"; "you can actually use your femininity to get certain things… it has its uses on certain occasions…. There's a slight element of the 'helpless female'… you've got to be careful in the way you dress.. I dress fairly staidly, but still looking feminine, hopefully" "Feminine charm counts for a lot. It's always easier for a woman to get to see a man with a job than for a man… Often I'll prefer to deal with a man than a woman. I'm much more wary of dealing with a woman… I can't chat her up… Often in business, people like to deal with members of the opposite sex because at least it's someone other than their husband or wife, or boyfriend or girlfriend" (*ibid*: 72)

(i.e. women) that is incongruent with the attributes that are thought to be required for success in certain classes of social roles (i.e. entrepreneurs)" (Eagly and Karau 2002: 574). Put another way, if the controllers of finance, contacts, information and influence doubt the capabilities of business owners, they are likely to withhold much needed resources, with significant consequences for firm outcomes. The inability to secure resources, whether networking *by* sex or networking *across* sex could account for the under-representation of businesswomen in male-dominated business sectors.

TABLE 3.2: SUMMARY OF HYPOTHESES

H1a	Nontraditional women owners suffer greater levels of perceived discrimination than traditional women
H1b	There are no differences in the levels of perceived discrimination suffered by nontraditional men owners and traditional men owners.
H2a	Women owners of firms in male-dominated sectors experience greater perceived discrimination from financiers than women owners of firms in female-dominated sectors.
H2b	There is no difference in the level of perceived discrimination from financiers experienced by men owners of firms in male-dominated sectors and men owners of firms in female-dominated sectors.
H2c	Women owners of firms in male-dominated sectors experience greater difficulty in obtaining external finance than women owners of firms in female-dominated sectors.
H2d	There is no difference in men owners' of firms in male-dominated sectors and men owners' of firms in female-dominated sectors ability to obtain external finance.
H3a	Aggregated across sectors, men owners have networks that are significantly more homogeneous than those of women owners.
H3b	Women owners in female-dominated industries have networks that are significantly more homogeneous, compared to women owners in male-dominated industries
H3c	There is no difference in the homogeneity of the networks of men owners in female-dominated industries, integrated and male-dominated industries.
H4a	Nontraditional women owners that have female-dominated social networks acquire a lower volume of resources than nontraditional women owners with mixed-sex networks.
H5	Nontraditional women owners that have male-dominated social networks experience greater perceived discrimination than nontraditional women owners with female-dominated or mixed-sex networks
H6	Women in male-dominated industries obtain a greater proportion of resources from strong ties than women in female dominated industries.
H7a	In the aggregate, women business owners obtain a greater proportion of resources from kin than men business owners

H7b	Women owners in male-dominated sectors obtain a greater proportion of resources from kin than women business owners in female-dominated business sectors.
H8a	Nontraditional women that have a male-typed or neutral education have networks that are more heterogeneous than nontraditional women that have a female-typed education.
H8b	Nontraditional women that have previous experience in the industry have networks that are more heterogeneous than nontraditional women that have no experience in the industry
H8c	Nontraditional women that have previous experience in the industry perceive less discrimination than nontraditional women with less relevant experience
H8d	Nontraditional women that have previous experience in the industry are more successful in obtaining resources than nontraditional women with less relevant experience.

CHAPTER FOUR: What is the truth and how can it be uncovered?

When a subject is highly controversial—and any question about sex is that—one cannot hope to tell the truth. One can only show how one came to hold whatever opinion one does hold

Virginia Woolf, A Room of One's Own, (Woolf: 14)

4.1 Introduction

The philosophy of the social sciences is concerned not with specific knowledge or facts within the discipline, but with the ways in which social phenomena may be studied, analyzed and explained (Theobald 1968). It is vital that there is a good fit between the philosophical assumptions of the researcher and his or her methodological approach to investigation (Little 1991). This is because the researcher's philosophical commitments are tantamount to internally justified theoretical bases, which act as "foundations to which one might cling, frameworks beyond which one must not stray, objects which impose themselves, representations which cannot be gainsaid" (Rorty 1979: 315). Accordingly, empirical social scientific investigation can only proceed subsequent to the recognition of one's philosophical stance (Johnson and Duberley 2000). Of course, choice of method of research depends on the nature of the problem under investigation. However, this choice also depends upon what we accept as truth and what we reject as falsehood: "Research cannot begin until we have chosen, and so our choice must be made without reference to the results of research. In other words, our choice will be extra-empirical, and this is to say that it is ultimately a philosophical choice" (Theobald 1968: 18).

Researchers in entrepreneurship rarely devote space in articles to discussing or questioning their philosophical foundations. This is problematic since successful 'science' must begin from a lucid and well-articulated philosophical

foundation (Burrell and Morgan 1979; Benton and Craib 2001). Therefore, in this brief but well-intended chapter, I explore the preeminent philosophical positions and perspectives relevant to social capital, gender and entrepreneurship, constructing along the way a knowledge framework for the research study. In the first section, I examine some of the key concepts of social research: philosophy, epistemology; ontology and methodology. I then examine the dominant positivist, interpretivist (constructivist), feminist and critical realist positions, describing the ways in which these paradigms have been applied in prior research and discussing the suitability and applicability of these perspectives to my own research. Finally, I outline my own philosophical principles, and the implications of these for the methodology and methods of this research.

4.2 Paradigms in gender, networks and entrepreneurship research

This chapter will make more sense if the key terms are first introduced and clarified. *Paradigms* refer to the major intellectual traditions or theoretical frameworks of a discipline and are comprised of sets of ontological and epistemological assumptions. *Epistemology* or the 'theory of knowledge' is concerned with the means of knowledge, that is, how we know what we know (Benton and Craib 2001). *Ontology*, a related concept, is concerned with the constituents of the social world, and the ways in which reality is conceived and represented (Burrell and Morgan 1979). The ontological and epistemological assumptions of a paradigm give rise to methodological principles – that is, the rationale for, and approach to the study of particular phenomena. *Methodology* is comprised of philosophical principles as well as specific methods or techniques of data collection and analysis.

Research *paradigms* have been defined as the "basic belief system or worldview that guides the investigator" (Guba and Lincoln 1994: 105). Paradigms act like maps that determine how research is to be conducted, guiding the researcher on what constitutes data, what is important and what is not, what is to be taken seriously, and what should be ignored (Theobald

1968). The relationship between paradigms and research 'findings' is therefore unequivocal and irrevocable, and ought to be made explicit by the researcher. Three main strands of literature are applicable to the present study – 1) gender and entrepreneurship, 2) gender and networks (including entrepreneurial networks) and 3) occupational segregation and gender stereotypes. In this literature, rarely are philosophical foundations explicitly asserted, although they are often transparent. In the scholarship on social networks, positivism is clearly the major philosophical base, and approaches to data gathering and analysis involve increasingly large samples and advanced statistical procedures (see Jack 2010 for a discussion).

TABLE 4.1: THE MAJOR PARADIGMS IN RESEARCH ON GENDER, NETWORKS AND ENTREPRENEURSHIP

	POSITIVISM	**CONSTRUCTIVISM**	**CRITICAL REALISM**	**FEMINISM**
Ontological assumptions	Naïve realism, Universalism	Nominalism, Relativism	Historical realism	Relativism
Epistemological assumptions	Objectivism, Scientism	Subjectivism, constructed findings	Objectivism/moderate constructivism; Value-mediated findings	Subjectivism
Aims	Prediction, control	Descriptions of reality	Descriptions of reality as experienced	Descriptions of reality as experienced
Methodology	Experimental, Quantitative	Dialectical, Hermeneutical, Qualitative	Dialogical/Dialectical, Qualitative	Qualitative, Hermeneutical; Dialectical
Analytical Process	Causality	Associative meaning	Causal explanation	Associative meaning

Source: adapted from Guba and Lincoln, 1994

Constructivist and feminist ideas underpin much of the research on gender, as exemplified by those researchers who examine gender relations through the interpretation of male/female interaction and conversation (e.g. Smith-Lovin and Robinson 1991; Molm and Hedley 1992; Ridgeway and Smith-Lovin 1999; Carli 2006). Entrepreneurship studies have traditionally been dominated by a positivist/postpositivist epistemology, realist ontology and quantitative methods (Burrell and Morgan 1979), but increasingly, constructivist-

interpretive, critical realist and post-structuralist paradigms are being advocated and adopted (Jennings, Perren and Carter 2005; Neergaard 2007). Table 4.1 loosely describes the research process according to a schema organized around each of the four major paradigms relevant to this thesis: positivism, constructivism, critical realism and feminism, and in the next sub-sections, these positions are examined in turn.

4.2.1 Positivism

Despite being heavily targeted for criticism in recent years, positivism remains the dominant epistemological perspective of management research (Jennings et al. 2005) particularly in the field of entrepreneurship, where it has acted as "a potential barrier to other perspectives" (Grant and Perren 2002: 193). Positivistic approaches take a deterministic view of phenomena and advocate that the methods of the natural sciences are equally relevant and applicable to the social sciences (Burrell and Morgan 1979). Such approaches emphasize scientism, objectivism and empiricism – where experimentation generates verification of facts from the observation of phenomena. Thus, the general aim of positivistic research is to generate casual laws that can be applied to explain reality and to predict or control the social world (Benton and Craib 2001). There are two basic forms of positivism, both of which involve a linear movement through the research process. The *deductivist* version is a process in which the general problems or interests of the researcher guide the formulation of hypotheses, which are then tested via the collection and analysis of data. The *inductivist* alternative is the reverse of this model, and describes the movement from research to theory (Stanley and Wise 1993).

Positivistic ideas underpin much of the research on the social networks of entrepreneurs (Stanley and Wise 1993). Work in this tradition has calculated and compared numerical measures of the network traits of entrepreneurs, such as network size, network composition, density (the extent to which an individual's contacts are connected to one another), cohesion (the extent to

which relationships are reciprocated), centrality (the spatial location of the entrepreneur in relation to her contacts) and range (the number of different groups the entrepreneur is connected to) (see Coviello 2005 for a review). Measuring these traits typically requires a great deal of information and the performance of a set of complex statistical analyses. The continued popularity of positivism amongst social network scholars is perhaps partly explained by the historical development of social network analysis. From the 1930s to the 1960s – when arguably 'scientific' methods were at the forefront of virtually every field of human inquiry - much work was done on translating the important concepts of social network research into mathematical forms that allowed them to be modelled and measured (Wasserman and Faust 1994). The successful application of network analysis to sociometric data in certain fields of the 'hard' sciences – especially medical epidemiology, where it has been used to track and trace agents who carry diseases such as HIV and AIDS – was soon replicated in the social sciences.

Scholars using such approaches have made some extremely important contributions to the social sciences. Perhaps the most notable of these is Granovetter's (1973) seminal 'strength of weak ties' article, a paper that has been called "one of the most influential sociology papers ever written" (Barabasi 2003: 42) and is arguably the most frequently referenced of all sociological works. Granovetter's theory has been replicated, extended and modified in countless subsequent works, but virtually all have retained the positivistic research design (see, for example Montgomery 1994; Wasserman and Faust 1994; Aldrich et al. 1997; Katz and Williams 1997). The increasingly popular use of large-scale network samples such as the General Social Survey data has at the same time facilitated and necessitated this methodological approach. Much recent work on social networks has been concerned with re-testing the theories of Granovetter by applying increasingly complex modes of analysis to this growing bank of data.

Because much previous research on social networks can be located within the positivist paradigm, it would seem logical to employ a similar approach to the current study. I do, however, see drawbacks to a wholly positivist research design. Research using such designs tends to be geared towards understanding the shape of networks, rather than with the content or meaning of network interactions (Bourdieu and Wacquant 1992). This is partly because the meanings of exchanges are not directly observable or quantifiable; accordingly, analysis of the role of gender does not sit well in the quantitative methodological paradigm which social network research favours (Neergaard, Shaw and Carter 2005). There is little room in the design of most positivist network research for the role of aspects such as personal beliefs and stereotypes; similarly, context is not adequately accounted for. This has led to criticisms that traditional network approaches are overly structural and present incomplete truths (Hoang and Antoncic 2003; Coviello 2005; Jack 2010).

More importantly, traditional social network analysis downplays the relationship between gender and other individual characteristics and network outcomes. This is because in the network perspective, the attributes of individual units are considered secondary to the properties of the structural or relational system (O'Donnell, Gilmore, Cummins and Carson 2001). This means that the physical characteristics of actors are understood only in terms of the ties between them and others. For example, Collins (1988: 431) has argued that:

> "Social life is relational. It's only because, say, blacks and whites occupy particular kinds of patterns in networks in relation to each other that "race" becomes an important variable".

This type of argument is at odds with my own understanding of social categories such as 'race' and 'gender'. To say that gender is only important insofar as it structures social life ignores the ways in which, as gender congruency theory suggests, people make judgments about individuals on the basis of their physical characteristics. Arguably, the ontological requirements of positivism (that is, empirical observation) and its epistemological

perspective (that which can be understood is only that which is observable and measurable) do not sit well in a study of gender and interaction. Finally, positivism does not reflect the fact that networking behaviour is “dynamic, fluid and extremely difficult to capture by counting instances of contact” (Chell and Baines 2000: 196). These limitations of the positivistic approach led me to consider an alternative theoretical framework: the interpretivist-constructivist paradigm.

4.2.2 Interpretivism/Constructivism

The interpretivist paradigm is a useful umbrella term for several anti-positivistic philosophies, including phenomenology, ethnomethodology and hermeneutics (Burrell and Morgan 1979). It offers an antidote to the atomism of the positivistic method and provides the means of understanding social phenomena inside a social context. At its heart, interpretivism maintains that social phenomena can only be understood through the interpretation of their meanings and significance to individuals (Little 1991). The social sciences are unlike the natural sciences in that natural phenomena may be described and explained; but the social world can only be interpreted in order to be understood. As social worlds are constituted by the meanings agents attribute to them, there can be several different social realities. The aim of interpretive research is to “understand the subjective experience of individuals” (Burrell and Morgan 1979: 253) and demonstrate the “point of view of the actors directly involved in a social process” (*ibid*: 227). This approach emphasizes inter-subjectivity, or the unavoidable relationship between the researcher and the researched, and as such, is linked with qualitative methods.

Constructivism can be conceived of as a form of interpretivism and is an approach that has been heavily used in gender studies (Neergaard 2007). Largely growing out of sociology, constructivists emphasize the social side of gender relations: the gender system is constructed when men and women talk and communicate, follow conventions, rules and norms, perform rituals,

appeal to guidelines or institutions and engage in various other social activities (Case 1994; Ivy and Backlund 2008). Social phenomena mediate both agency and structure; for the constructivist, a rich understanding of social change can be developed from the knowledge that agency and structure are co-constituted. Structures – including the gender system – are produced and reproduced through the behaviours of knowledgeable agents, while at the same time enabling these activities. The focus of inquiry for the constructivist is therefore social phenomena, including, but not limited to language, culture, norms, rules and institutions. It is clear to see why constructivism is an appealing philosophy for scholars of social capital as well as gender.

Adopting a positivist or a constructivist approach to this study could produce conflicting results. To give an example from the extant literature: positivist research repeatedly finds that women-owned firms 'under-perform' (that is, they generate less wealth than those owned by men) (see section 1.1). It is also clear that much of this under-performance is a function of the overconcentration of women owned firms in low-growth industries such as catering, cleaning and care. In order to achieve a more equitable distribution of ownership, it would seem that women should 'act' more like men in this business behaviour. In other words, positivist studies would recommend that women should own and operate male-typed businesses. However, constructivist-led studies might question whether this 'under-performance' is an issue at all; arguing that what is important is whether the firm owner is satisfied with her accomplishments. In this sense, 'performance' would differ according to the interpretation of the owner. So, where positivists have arguably been too quick to offer explanations based on limited, static data, the weakness of constructivism is that it is difficult to reach conclusions where there is no adequate definition of what is under study. It seems to me that both approaches have their strengths; elements of both positivism and constructivism would be useful in guiding this research.

4.2.3 Feminist perspectives

Feminist approaches purport to counter some of the weaknesses and criticisms of the more conventional traditions in social scientific research, and as such, must be mentioned – albeit briefly - here. Indeed, it may be argued that a "feminist epistemology" is the only suitable approach to studies investigating gender (Silverman 2001). While some have questioned whether there can be a singular "feminist method" (Harding 1987a), feminism can be summarised as "a mode of analysis, a method of approaching life and politics, rather than a set of political conclusions about the oppression of women" (Harstock 1998: 35). Feminist perspectives are myriad, but share the premise that reality – and gender in particular – is both subjective and socially constructed (Harstock 1998). For too long, the social world has been described from the point of view of men's reality "which they confuse with the absolute truth" (de Beauvoir, in Hurley 1999: 54). Indeed, the major feminist condemnation of conventional social scientific methods is the insistence that there exists only one objective reality. Feminists tend to reject the assumption of a single society; literally and subjectively, men and women inhabit different social worlds and experience different "realities". Reality is in fact subjective, and the collective delusions brought about by masculinist science can be undone by introducing fresh (feminist) perspectives to the analysis of the familiar (Gilligan 1987).

There are several implications of this feminist reanalysis of knowledge. Firstly, the question of what is to be reappraised using a feminist epistemology necessarily leads us to derive problematics from the perspective of women. For Harding (1987: 8), "the questions about women that men have wanted answered have all too often arisen from desires to pacify, control, exploit or manipulate women". Issues such as domestic violence and abortion as well as job segregation and gender stereotyping – are generated from a women's perspective. Secondly, feminist approaches call for social science to adopt a stance of reflexivity, that is, to explicitly recognize and acknowledge the assumptions, beliefs and behaviours of the researcher. For example, Harding

(1987) states that if researchers explicitly state their gender, race, socioeconomic class and other factors, and recognise the ways in which these background factors have shaped the research project, this will help social science to avoid the objectivism that distorts research findings because of the unexamined beliefs and behaviours of social scientists themselves. "Introducing this 'subjective' element into the analysis in fact increases the objectivity of the research and decreases the 'objectivism' which hides this kind of evidence from the public (Harding 1987b: 9). Finally the methodological implications of these premises is that feminist perspectives tend to be associated with qualitative approaches to research; quantitative methods are criticized for alienating the individual while overstating the importance of other variables. The mastery of "man" over science and Mother Nature is associated with a masculine style of control and manipulation that is detrimental to the "person" (Millman and Kanter 1987). To counter this, feminist scholars in entrepreneurship have called for the incorporation of the personal into the study of entrepreneurs and their firms:

> "Social science researchers are taught to mistrust experience, to regard it as inferior to theory, and to believe that the use of 'research techniques' can provide data unclouded by values, beliefs and involvements. Researchers work within a 'normal science paradigm' and the worldview embodied within this provides us with the categories through which experience is gained. In other words, frequently we fail to report or discuss the contradictions between experience, consciousness and theory, because the paradigm we work within tells us that these are unimportant or nonexistent"
>
> (Stanley and Wise 1993: 153)

I am greatly attached to this call for the report of research as it is experienced, and recognise the major contributions that feminist theory has made to the study of gender. However, I find the application of feminist perspectives to earlier literature on entrepreneurship and social networks multifarious, confusing and in many cases, unsuccessful (see Greer and Greene 2003 for an in-depth discussion) While I empathize with the movement's emphasis on diversity, inclusiveness, consciousness and experience, I have a number of

criticisms of feminist philosophies, mostly relating to their scope. Firstly, while there may be an overall objective that many feminist scholars share, contemporary feminist thought is a disparate and disjointed field. Membership of the movement is comprised of liberals, Marxists, radicals and other groups guided by feminist empiricism, standpoint theory or postmodernist principles. Such a wide strata of beliefs has made it difficult for the movement to consolidate and attain its objectives (Ephron 2000). In the field of entrepreneurship, this has led to the criticism that too many studies "borrow ideas from a range of scholarship on gender, applying various degrees of theoretical vigour, while at the same time proffering newly named theories for use within their own discipline based on these eclectic borrowings" (Greer and Greene 2003: 14-15).

The feminist epistemological activities of revising, re-examining, reappraising and rewriting research that have previously been undertaken in a patriarchal and androcentric framework arguably amounts to what Kuhn (1970) termed a 'paradigm shift'. For Kuhn, a paradigm shift occurs when problems appear to be too challenging to be accommodated within a particular paradigm. The accumulation of these problems – which Kuhn terms 'anomalies' – can lead to a period of "crisis" within the discipline, resolved only when a consensus forms around an alternative approach – later consolidated as a paradigm. This new feminist way of thinking has been a useful approach to the study of all types of issues, but the direction that contemporary feminist philosophies have taken is the source of my frustration. My criticism parallels the French-Algerian existentialist philosopher Albert Camus' (1956) distinctions between a (political) rebel and a revolutionary. Camus observed that the rebel defines "himself" (women were excluded from Camus' analysis) as opposed to an oppressive system, but offers no alternative beyond self-assertion or the celebration of rebellion in itself, and the positioning of self on the margins of the system. In contrast, the revolutionary is dedicated to overthrowing the system and replacing it with an improved, or radically different alternative, which is usually shaped in accord with a well-defined ideology.

Although conceived in a different context, this argument can be applied to a critique of modern feminist philosophies. Feminism arose as a direct rejection of "normal science", but in many ways, it too has become yet another standard and accepted way of doing research. Stanley and Wise (1993) have argued that contemporary feminism is characterized by an orthodoxy and dogmatism that hardly differs from the androcentric approaches it claims to improve on. I agree that this orthodoxy is more harmful than helpful, and has helped to stagnate research on complex issues such as gender atypical entrepreneurship: "For many feminists 'feminism', 'the' feminist way of seeing reality (as though there were only one) is now seen as the true way of seeing it" (Stanley and Wise 1993: 23). Furthermore, at the same time as denouncing 'androcentric' methods and methodologies, feminists have presented feminist version of traditional theories. Feminist empiricism, or the sex-as-a-variable approach amounts to no more than gender-conscious positivism (Alvesson and Billing 1997). Studies using this approach are generally concerned with "imitating established ideas and models in social science without adding very much in terms of novelty or taking more sophisticated ideas on gender into account (Alvesson & Billing 1997: 28). Feminist standpoint theory is not dissimilar to constructivism – both perspectives share a relativist ontology, the belief that categories like 'gender' are social constructs and intersubjectivity as a key concern. Similarly, feminist postmodernism is difficult to distinguish from post-structuralism. Finally, the conflation of feminist epistemology with qualitative methodologies seems to me to be detrimental to feminism's claim of avoiding methodological techniques that limit the researchers' vision and produce questionable findings (Millman and Kanter 1987).

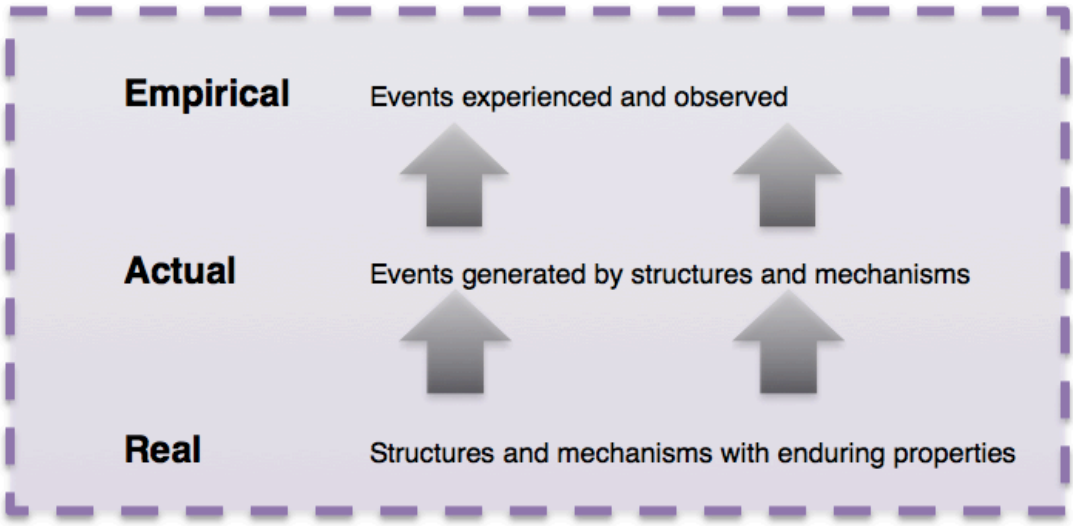
4.2.4 Critical realism

Given the deficiencies of the paradigms presented above, an alternative philosophical approach is proposed and adopted here: critical realism. Critical realism shares many of the assumptions of the paradigms already reviewed, but also avoids many of their weaknesses. It shares with feminism and

constructivism a ‘constructed’ perspective of social reality and the understanding that agency and structure are co-constituted (Sayer 2000). Like positivists, critical realists accept that realities are objective, but ‘realities’ may be comprised of theories and values, as well as entities, and the natural and social sciences are distinct. Unlike positivists, the critical realist takes as a starting point the nature of the phenomenon under investigation, selecting and tailoring research methods to suit. The epistemology of critical realism is relatively pluralistic; the realist rules out little *a priori*, resulting in a flexible and accommodating paradigm (Ackroyd and Fleetwood 2000). While the explanations that can be achieved and the means for achieving them depend heavily upon the problem, preference is given to explanation as opposed to description, and knowledge tends to be derived from research that seeks to unearth the properties, structures and mechanisms of the social world.

Broadly stated, critical realism is a version of realism (Harré 1986) that presupposes a *depth ontology*; the notion that reality is deep and stratified, and that the various layers (levels and emergent properties) of the world interact with each other in dialectical and complex ways (Archer 1995). Much social research is concerned with the identification of patterns or *regularities*, which can be expressed as law-like statements. Yet, while the empiricist contends that nothing can be known to be real unless it can be observed, the critical realist argues that the deep, differentiated and stratified nature of reality means that what is observed in the world is not equal to what actually happens, causing regularities to be imperfect in nature (Lawson 2003). Perhaps the best-known formulation of ontological stratification is Bhaskar’s (1998) tripartite ontological *domains of reality*, which distinguishes between the actual, the empirical and the real (Figure 5.1).

FIGURE 5.1: BHASKAR'S (1998) DOMAINS OF REALITY



Source: Derived from Bhaskar (1998)

The domain of the *real* consists of unobservable and (possibly) non-physical mechanisms and structures with enduring properties and the emergent properties to which the composition of these structures gives rise. When exercised, these structures and mechanisms have generative properties that bring about the occurrence (or absence) of concrete events; these events comprise the domain of the *actual*. However, only a subset of these phenomena will be experienced or observed by human beings and thus become *empirical* so that sense-data represents only the 'tip of the iceberg' (Bhaskar 1998). A key point is that is that the three ontological domains can diverge, intersect and overlap. Importantly, generative mechanisms at the level of the real do not act *actualistically*, but *transfactually*; in other words, it is possible for generative mechanisms to exist and be exercised without producing any actual or empirical events. For instance, it is possible that the conditions that generally produce lightning to be present but for lightning to not strike, or to strike but not be witnessed by any individual. Indeed, Bhaskar (1998) argues that this is the norm, for the social world is an *open system* in which the actions of other structures or agents tend to intervene with generative mechanisms to prevent or conceal the occurrence of events in the domain of the actual.

The depth and complexity of reality means that social knowledge is both *limited* and *fallible* (Archer 1995). Knowledge of social structures is limited because the stratification of reality prevents human beings from accessing reality (Bhaksar, 1998). At the same time, there is no universal standpoint on social structures that is not mediated by the social context of the observer (Patomaki and Wight 2000). It is this social construction of knowledge that gives rise to its fallibility Sayer (1992) has argued that in spite of *fallibility* and *limitedness,* empirical evidence can be utilized to challenge false knowledge claims, but that many claims to knowledge will remain invalid or erroneous. The task of scientific inquiry is to attempt to isolate generative mechanisms from other structures and agents so that the powers or tendencies of generative mechanisms might be known and understood. Since empirical observation "is the end, not the beginning of the journey" (Bhaskar 1998: 43), the task of the critical realist is an explanatory one, involving "centrally, the substitution in our imagination of a real or empirical relationship for an unreal or theoretical one" (Bhaskar, Roy, 1998: 56). Ontological questions should not therefore be reduced to epistemological questions – what Bhaskar (1998) terms the *epistemic fallacy*.

I view this stratified view of reality as highly applicable to an understanding of gender segregation in entrepreneurship. Studies in the positivist tradition have avoided exploring issues such as business owners' experience of gender stereotyping because such experiences are not seen to be observable and/or measurable, resulting in theoretical weakness. And, unlike constructivists, critical realists recognize the underlying pervasiveness of socially constructed concepts such as gender: "while it never does harm to point out that gender, nation or ethnicity or race are social constructs, it is naïve, even dangerous, to suppose that one only has to 'deconstruct' these social artefacts, in a purely performative performance of resistance, in order to destroy them" (Bourdieu 2000: 108). The realist position accommodates the unseen and unexpressed, increasing the potential for richer explanations of entrepreneurial segregation than may have been available without it. In many ways, realism promises a

fuller way of capturing the complex nature of gender relations than the alternative approaches because of its more holistic view of the world. This appeal has led to a quiet paradigm shift in equalities research. While this shift towards realism has again not been made explicit, it is evident in the way that some sociologists have called for a more holistic and diverse approach to understanding gender relations, rejecting the unhelpful dichotomies – mind/body, active/passive, nature/technology and so on – which reinforce the male/female binary categories and ultimately fragment and impede a deep understanding of gender interactions (see Sappleton and Takruri-Rizk 2008 for a review). The entrepreneurship and social network fields have been slower to adopt a realist position but scholars in these disciplines have started to make calls for its application (e.g. Jennings et al. 2005). A study of gender, entrepreneurship and social networks guided by a critical realist perspective would therefore be based on an understanding of both structures and relationships, and would aim to describe the processes that explain the observed differences (if any) in the resource acquisition of traditional and nontraditional women and men, as the gender-typed contexts in which these differences are located.

Unlike the other positions discussed, critical realism avoids methodological dogmatism. Equal weight is accorded to the theoretical and empirical accumulation of knowledge location (Pawson and Tilley 1997), and both quantitative and qualitative methods ('intensive' and 'extensive' research in Sayer's (2000) parlance) are valued depending on the subject matter under study (Sayer 2000). Unlike positivists, the critical realist takes as a starting point the nature of the phenomenon under investigation, selecting and tailoring research methods to suit. The epistemology of critical realism is relatively pluralistic; the realist rules out little *a priori*, resulting in a flexible and accommodating paradigm (Ackroyd and Fleetwood 2000). While the explanations that can be achieved and the means for achieving them depend heavily upon the problem, preference is given to explanation as opposed to description, and knowledge tend to be derived from research that seeks to

unearth the properties, structures and mechanisms of the social world. Wendy Olsen (2006) and others (Ron 2002; Pratschke 2003; Mingers 2006) have argued that the complexity of the social world and the interpretivist ontology welcomed by realists necessitate methodological pluralism. Since Bhaskar (1975) originally conceived of his version of critical realism as an antidote to positivism, many of those who have developed and refined the realist approach have denounced quantitative methods of inquiry on the basis that statistical procedures and positivism are inextricable or worse, isomorphic. But there is no a priori reason that quantitative methods cannot accompany a critical realist methodology (Pratschke 2003).

Several arguments have been advanced to support an embrace of quantitative methods within a critical realist framework. The argument I find most convincing evinces Harré (1986), who heavily influenced Bhaskar's (1975) version of realism. This argument, which I shall term the anti-empiricist argument, rejects the conflation of quantitative methods with an empiricist philosophy of social science and contends that mathematical laws should not be treated as narratives of constant conjunctions of events, but as ontologies of "powerful particulars" (Harré 1995). Empiricism is generally understood as generation of law-like statements expressed as constant conjunctions of events (Hume 1967) in the formula of "whenever this, then that" (Bhaskar 1975: 60). Positivists (whether in the natural or social sciences) pay obeisance to the understanding that such deterministic regularity can only be empirically corroborated or refuted in what Bhaskar (1975: 59) terms a "closed system" - a situation in which there exists unique and logical relationship between antecedent and consequent.

In contrast, realists argue that law-like statements apply equally to open systems because laws make claims about the *real* and not about the empirical:

> "The citation of a law presupposes a claim about the activity of some mechanism but not about the conditions under which the mechanism

> operates and hence not about the results of its activity, i.e. the actual outcome on any particular occasion" (Bhaskar, 1975: 104).

This reconstructed understanding of laws enables the realist to ascribe roles to both agents and structures. Whilst individuals, for example, may exhibit tendencies to act in a particular way, the realist also imbues them with the ability to initiate action. Thus, the realist gives powers to entities, or *particulars* (Harré 1995) and claims that "this particular has an inner structure that generates a mechanism, which then put the particular in a tendency to act in a certain way" (Ron 2002: 131). In other words, laws may be broken because of the actions of another mechanism, or because of agential change. Critical realists reject the empiricist approach to scientific investigation which, prima facie negates any approach utilizing constant conjunctions of events:

> "The world consists of things, not events… on this conception of science it is concerned essentially with what kinds of things they are and with what they tend to do; it is only derivatively concerned with predicting what is actually going to happen" (Bhaskar, 1975: 41).

However, taking an anti-empiricist view, it may be argued that mathematical equations are not, in fact, constant conjunctions of events, but powerful particulars that might precipitate a certain outcome given a certain set of structures. Ron (2002) convincingly argues that statistical procedures based on least square, maximum likelihood estimations and Bayesian inference (i.e. regression analyses), an arguably empiricist (positivist) approach is reconcilable with a critical realist philosophy because researchers adopting such strategies recognize (although often fail to explicitly acknowledge) that attainment of a 'true model' is rarely possible:

> …a model is necessarily (and preferably) an abstraction and thus a drastic simplification, one that if successful will enable one to study only the essential elements of reality. Models may be good or bad for some purpose or another, but labelling models as true or false is not fruitful.

> Can one distinguish between true and false models of an airplane? Presumably either all models are false or the only true (sufficiently realistic) model is the airplane itself (although even actual airplanes do differ from one another). In either case, the goal of finding a "true model" is neither worthy nor useful (Ron 2002: 1048)

In summary then, in the social sciences, quantitative methods do not necessarily instantiate empiricist philosophies (or indeed any other). Taking the anti-empiricist view, when a scientific law (such as regression analysis) is evoked, the researcher is not attempting to *predict* whether that same law will prevail in another circumstance, as is the purpose of the positivist; rather, the researcher is merely describing the property of the particular (Ron, 2002). This research design employed in this study is certainly quantitative (see chapter 5), but I do not wish to contribute to the qualitative/quantitative debate – the so-called "Great Divide" – which I view as detrimental to the pursuit and development of knowledge. It is popular (and increasingly so in entrepreneurship research) to conceive of one's research design as a choice between these two "mutually exclusive" approaches. Qualitative research is usually associated with the collection and analysis of words or text; whereas quantitative data is commonly assumed to be presented in a numerical form. I do not accept this conventional distinction. As Gummesson (2003) has argued, subjective and qualitative elements are found throughout all qualitative and quantitative research, and an element of interpretation is required in the presentation of all data and results. Using the latest software, text and transcripts can be coded and analysed in a quantitative way; the interpretation of quantitative data also requires an element of qualitative judgment. For me, the qualitative/quantitative contradistinction obscures the real issues of interest in the social sciences.

In undertaking this study, I seek to bring the subject back in by uncovering 'meaning' as opposed to merely 'celebrating' the existence of statistical significance (Kilduff and Krackhardt 2008). Like many other network studies, this research "uses quantitative measures to estimate information which is

essentially qualitative and cumulative in nature" (Kilduff and Krackhardt 2008: 393). I acknowledge upfront that it is difficult to build a complete truth on statistically significant cause-and-effect links; the meaning and significance of behaviours and actions to agents are equally important. In chapter 7, these quantitative findings are interpreted in such a way as to attempt to uncover the 'unseen'. In an emerging discipline, some degree of interpretation is required, for "at most, a dummy variable in regression analysis will tell us that a change has occurred. But as its name implies, a dummy variable is mute. It can only indicate that a change occurred; it cannot tell us the details of why and how the change occurred" (Bygrave 1989: 21) This research therefore is unlikely to achieve correctness or confirmation, but may in fact generate further questions – such research is often the bedrock of new and provocative theory (Lewis and Grimes 1999). Given the predominance of positivism in social network and entrepreneurship research one would be well advised to cling to the methodological procedures, practices and prejudices of conventional scholarly journals in order to attain academic recognition and respectability (Bygrave 1989). Yet, I do not wish to downplay the personal or the unexpressed in ways anathematized by critical realists. I attempt to be pragmatic in the presentation of the research findings. An approach to research that is flexible and diverse is arguably in the spirit of gender equality – the very problematic from which I derived the original research question.

4.3 Acknowledgement of personal influences

Gender is hotly contested academic terrain, and feminists have called for research that calls greater attention to the role of "the personal". While this research does not adopt a feminist epistemological stance, it is true that much research is tainted by researcher's prejudices and personal interests. Thus I take time here to offer an indication of the ways in which my own personal background shapes my approach to this research. My interest in gender relations stems out of a working background in equality policy: I spent some time employed as a policy analyst at the UK Equal Opportunities Commission (now the Equality and Human Rights Commission). During my tenure there, I

worked on a General Formal Investigation into occupational segregation and gender stereotyping in engineering, construction, childcare, ICT and plumbing[10]. I later worked as a researcher on projects concerned with varying facets of gender equality, including gendered careers advice, pregnancy discrimination and work-life balance. I remain committed to the pursuit of gender equality and view economic equality as the key to equality in other domains of life.

[10] The Equality and Human Rights Commission has a duty under Section 53(1) of the Sex Discrimination Act 1975 (SDA) to work towards the elimination of unlawful sex discrimination and to promote equality of opportunity between men and women generally. Section 57(1) of the SDA empowers the Commission to conduct a formal investigation for any purpose connected with carrying out its statutory duties. There are two kinds of formal investigation: belief investigations where unlawful acts are alleged and general investigations where there are no grounds for belief that unlawful acts have been committed but where there are wider concerns about the promotion of equality.

CHAPTER FIVE: Research Design

5.1 Introduction

Despite the ambiguities surrounding what exactly constitutes social capital, there are a few established methods of capturing and measuring social networks in the literature. Initial choice of method depends on whether or not a network boundary can be clearly delineated, that is, whether or not it is obvious who should be included in and excluded from the network. In many cases, clear, natural delimiters can be discerned; as in the case of a high school class, or a single firm. In such cases, it is possible to enumerate the entire population and for many students of social networks, this is the preferred form of network analysis (Alba 1982; for examples see Ibarra 1992; Johannisson and Ramirez-Pasillas 2001). Where the perimeters of the network are less clear, an ego-centered approach to data generation and analysis is necessary. Many view this as a less preferable approach since analyses of the properties of total social structures that have dominated social network studies (particularly questions of centrality and other types of positional analysis) are impossible using an ego-centered approach (Marsden 1990).

That said, an ego-centered research design is adopted here for reasons empirical, methodological and theoretical. Firstly, unlike studies of entire social structures, well-designed egocentric studies yield data that can more easily be generalized to wider populations using conventional statistical methods (Marsden 1990). Secondly, ego-centered designs are common to studies seeking "to explain differences across actors in social position, or to link such differences to variations in outcomes (e.g. well-being)" (Marsden 1990: 438). It is an approach that is therefore well suited to studies of gender and personal networks (see for example Brass 1985; Aldrich, Reese and Dubini 1989; Aldrich et al. 1997; McGuire 2000). And, thirdly, choice of network approach depends on whether the patterns of actual social relations,

or social relations as perceived by respondents are deemed to be of primary importance. Objectivists/nominalists prefer to study actual social relations (i.e. relations as perceived by an observer) in keeping with their theory that human agency plays a limited role in the construction and operation of networks (Kilduff and Tsai 2003). However, scholars in the realist vein have argued that what is important in attempting to examine the impact of entrepreneurs' networks on their personal and firm-related goals and objectives is the view of the network from the standpoint of the entrepreneur (Renzulli and Aldrich 2005). Designating an artificial boundary can cause important ties that sit outside of the boundary limits to be missed (Straits 2000). For realists - and this research sits within the critical realist paradigm - an individual's social world is best discerned by allowing respondents, rather than researchers, to define who should and should not be included (Harvey 2002).

Generally, using the ego-centered approach, data is collected from a focal actor termed *ego,* regarding a nominated set of contacts or *alters* that have ties to ego (Alba 1982). The reported information then provides the foundation for a set of complex quantitative analyses used to give comparable measures of the network traits of ego, such as network size, proportion of kin, sex composition, density, and range. More specifically, however, several ways of delineating networks within the general ego-centered approach are possible. In this chapter, I review some of the most common methods of collecting data for social network analysis. This is a long chapter, but the task is a necessary one for "the question of how well data collection methods can identify social contacts is perhaps the most central one for network measurement" (Marsden 1990: 450). I examine the benefits and drawbacks of various methods in an attempt to select the most appropriate technique for the current study, bearing in mind the research questions. This involves looking at the relative quality of response data, issues of sampling and response rates, and respondent and researcher burden. Finally, I describe the methods for selecting the sample and some of the practical and conceptual difficulties associated with data

collection in this domain.

5.2 Common methods of collecting ego-centered network data

5.2.1 Name generators

There are several ways of collecting network data, including qualitative interviews, visual methods and 'critical episode' interview techniques. Certainly the most widely known and well-used method of collecting survey-based network data is the name generator/name interpreter method. Using this method, an opening question is posed that seeks to elicit the first names or initials of the members of the respondent's network. After the list of names is compiled, information is collected about each specific network member via name interpreter questions, and the responses are coded onto an adjacency matrix. Marsden (1990) distinguishes between three types of name interpreter question: 1) reports on characteristics of the alters (e.g. age, sex) 2) reports of properties of the relationship between ego and alter (e.g. kin/nonkin, frequency and typical means of contact and level of 'closeness' or strength of tie) and 3) reports of the ties *between* alters which are used to measure network density. The most popular name generator is a variation on that used in the American *General Social Survey* (GSS)*:* "with whom did you discuss important matters over the last 6 months?" (e.g. Marsden 1987; Munch et al. 1997), but the exact form of inquiry is closely linked to the research question. Generally, four delineation approaches can be identified using the name generator/interpreter technique. These approaches are outlined in table 5.1 alongside example name generator questions and instances of research studies using the design.

TABLE 5.1 EXAMPLES OF THE DIFFERENT DELINEATION APPROACHES IN THE LITERATURE

Delineation approach	Examples	Example question
Interaction approach	Hansen 2000; Lai 2008; Campbell & Lee, 1991; Marsden, 2003	"Approximately how many people do you have contact with each day, including face-to-face interactions, telephone calls, exchange of letters, and contact through electronic means?" "Please name the people with whom you are interacting most to secure the business information and the resources that are important to your business"
Role relation approach	Booth, 1972; Lincoln & Miller, 1979; Kogovsek & Hlebec, 2008	"Which five individuals in the firm 1) have you worked closely with in the past month and 2) are you close friends with?" "Whom do you think of as being your friends (relatives)?"
Affective approach	Wellman 1985	Tell us about "six persons outside your home that you feel closest to"
Exchange approach	Renzulli & Aldrich, 2005; van der Poel, 1993; Bien & Marbach 1991	"I'd like you to think of the person you could go to if you needed: 1) legal assistance in business matters; 2) financial or accounting advice; 3) loan assistance with business loan or business financing' 4) expert advice" "Who gives you financial aid?"

Source:
Adapted from van der Poel (1993), Marsden (1990) and Straits (2000)

The *Interaction Approach* uses interpersonal contact as a criterion for network inclusion (van der Poel 1993). Survey methods are the most popular way of delivering this form of name generator, but researchers have also asked respondents to diarize individuals with whom they come into contact over a specified period of time (Fu 2005). In identifying network members using the *Affective Approach,* questions are posed about 'significant others', 'important people', 'people who mean a lot to you' and so forth. As the name suggests, this method is concerned with identifying the affective value of ties. The *Role Relation Approach* elicits the names of ties in a specific social domain, such as neighbours, or business associates. The *Exchange Approach* gathers information on alters with whom ego has, or might anticipate exchanging resources, instrumental assistance and/or support. It is common to ask

questions such as “to whom would you turn in an emergency?”, or “who would care for your home if you were out of town”? Although combining these approaches is known to provide a more comprehensive coverage of ego’s networks, in practice, because of costs, time and respondent motivation, a single approach and question is generally used (Straits 2000).

While different, these four approaches have several aspects in common that have contributed to their popularity, most important (and welcome) of which is their parsimony (Lin and Erickson 2008). As well as their simplicity, these types of survey question have a number of additional advantages. They deliver very detailed information about network members and their characteristics (Kogovsek and Hlebec 2008), allowing for relatively accurate estimates of network composition and other morphological traits. Furthermore, network measures elicited using name generator methods have been found to be relatively stable over time (Bien, Marbach and F. 1991).

However, the difficulties associated with name generators are numerous. Firstly, as Bernard *et al* (1990: 180) have pointed out, “the query used determines the list of names elicited, so that any particular query generates an approximation to the network”. For example, affective approaches elicit a network comprised only of persons whom ego likes (ignoring those for whom ego has less affect); whereas interaction approaches elicit networks comprised only of individuals with whom ego usually interacts (ignoring, say, ego’s mother who lives in another country but with whom ego is close). These methods are thus more suitable for probing close, rather than distant ties. For example, the GSS instrument (“with whom do you discuss important matters”) tends to capture strong, rather than weak ties because people tend to discuss important things with those close to them, and stronger relationships generally are the first to spring to mind (Lin 2008). Further, intimates and core ties are more accessible in memory, so they are likely to be listed first and more reliably than strictly instrumental relations (Brewer and Webster 1999). The people named are also likely to be connected to one another, because one

name helps the respondent to recall others (Marin 2004), resulting in homogeneous, dense networks that may exclude important ties (Lin 2008).

There are other problems associated with name generators. Question wording heavily impacts upon the network generated (Bailey and Marsden 1999; Brewer 2000). In an experiment administered to college students, Straits (2000) varied the wording of a name generator from “who are the people with whom you discuss matters important to you?” to “who are the people especially significant in your life?”. Interestingly, the “significant people” generator elicited more cross-sex and fewer same-sex ties from female (but not male) respondents than the “important matters” generator. Bailey and Marsden (1999) interviewed respondents about their thought processes immediately following answering the same name generator and found that some respondents struggled in specifying what was meant by the term “important matters”; sizeable minorities understood the question in terms of frequency of contact or intimacy, rather than in terms of specific social exchanges. Most defined “important matters” as referring to issues relating to personal life or intimate relationships, but appreciable numbers thought it had to do with work and political discussions. In an inductive study, Fischer (1982b) found that the term ‘friend’ was an imprecise construct; a residual label used for ties for whom a more precise term is unavailable. Van der Poel (1993: 14) noted that North Americans “are less restrictive in calling someone friends than Europeans. Many of the relationships Americans call friends, Europeans would label ‘acquaintances’”, while Burt (1983) adds that the word means different things to Americans of lower and higher socioeconomic standing, so that a name generator that asks about “friends” may elicit incomparable results. But, even though the impact of wording on ego’s given social world is recognized, since the content universe from which the network is drawn is unknown to the researcher, the representativeness of an ego-centered sample is difficult to determine (Lin 2008).

Crucially, name generators suffer from a high level of respondent burden. The task of completing the adjacency matrix grows geometrically depending on the size of the network; if we were simply asking whether person A knows person B, person B knows person C and so on, a network of 10 individuals would require 45 tie-tie evaluations, and a network of 50 ties requires a whopping 1225 evaluations. In most cases, this is time consuming and impractical, leading to high levels of non-response or abandonment if the survey instrument is self-administered (Kogovsek and Hlebec 2008). To circumvent this problem, researchers generally restrict network size to 5 alters (e.g. Moore 1990b; Munch et al. 1997; Renzulli et al. 2000; Greve and Salaff 2003)[11]. However, there is evidence that true network sizes are larger than this (Bernard et al. 1990) and such a restriction means that the impact of socially distant contacts, or other important acquaintances cannot be effectively analyzed. Criterion delimiters ("those who you feel emotionally close to"; "persons important to you"), timeframes ("the past six months"), and numerical constraints or upper limits ("name up to 6 persons") can also introduce respondent error into reported networks, affecting network size and skewing samples towards strong-tie networks (Alba 1982; Marsden 1990). Arguably, research participants will find it much easier to recall and describe close ties. Consequently, social network research based on name generators has been criticized for an over-focus on "strong ties" (Aldrich et al. 1997; Lin, Fu and Hsung 2001; Lin and Erickson 2008).

5.2.2 Position generator and reverse small world techniques

There are two popular alternatives to the name generator. In one version of the *Reverse Small World* (RSW) technique, ego is presented with a list of surnames chosen at random from the phone book and asked to recall whether they have ever been acquainted with an individual with each surname (Freeman and Thompson 1989). Name interpreter questions can then be

[11] The restriction imposed is usually 5 because, as Marsden (1987) reports, fewer than 6 percent of participants were able to name more than 5 contacts in response to the 1985 General Social Survey name generator question: "From time to time, most people discuss important matters with other people. Looking back over the last six months--who are the people with whom you discussed matters important to you?"

posed. By multiplying the number of alters known by the fraction of the total number of names in the phone book, acquaintanceship volume can be estimated. More recently, a group of scholars led by Nan Lin have begun using an alternative network delineation technique known as the Position Generator (Erickson 2004, 2006; Bekkers et al. 2008; Cross and Lin 2008; Erickson 2008; Lai 2008). This device is commonly used to test the links between access to social resources and social capital (Lin and Dumin 1986). Typically, researchers discern ego's access to a fixed list of persons in a variety of occupations (usually 15-20) which vary in social prestige. The occupations listed vary, but typically given occupations are: lawyer, social worker; carpenter, tailor; computer programmer; security guard; cashier; sales or marketing manager; sewing machine operator; delivery driver; human resources manager; janitor or caretaker; pharmacist; server; farmer (Erickson 2008). The idea is that respondents' indication of whether or not they know anyone in the occupations listed is indicative of their access to social resources (because there are different resources at different levels of the occupational prestige hierarchy). As such, position generators are structure- rather than person-focused (Lin 2008).

The Position Generator and RSW techniques can overcome some of the difficulties associated with name generators – particularly the tendency to oversample strong ties, and the sensitivity of elicited names to the generating items (Lin and Hsung 2001), and crucially, they have been found to have high levels of validity and test re-test reliability (Lin and Erickson 2008). They offer another advantage in that they are less time consuming than other methodologies: Lin and Erickson (2008) have suggested that a position generator survey can be delivered in 2-4 minutes of interview time. However, because they elicit a greater proportion of weak ties, such methods may miss out the ties that are most important to business people. Ego may recall individuals that they barely know, rather than individuals who have actually or could potentially provide them with some resource. Indeed, in Bernard et al's (1990) comparison of delineation methods, informants using a RSW method

often commented that the experiment made them recall people they had not thought of in many years. Additionally, these methods only allow for the inclusion of one alter per occupation/surname, even though they may know more than one person in each position. Fu (2008: 63) argues that ego decides which alter to include based on strength of tie and sex homophily: "whether the informant is male or female, someone of the same sex or those in frequent contact will come to mind first". This has implications for the validity and reliability of such methods.

FIGURE 5.1: A TYPICAL POSITION GENERATOR

Do you know anyone who is a…	Yes/No	Acquaintance (1), Friend (2) or Family (3) *Enter number below*	Male/Female
Server	Y	1	F
Lawyer			
Social Worker			
Tailor/ess			
Computer programmer			
Delivery driver			
Janitor			
Farmer			
Pharmacist			
Sewing Machine operator			
Cashier			
Security Guard			

5.3 Selecting a delineation approach

Above, the most common types of network delineator have been introduced and discussed. Each method is appropriate depending on the research question, but each suffers from drawbacks. One of the main difficulties associated with selecting a delineation technique is that the network generated (and hence, the research findings) is highly sensitive to the approach used (Milardo 1992). Network size, for example, varies extensively depending on the nature of the question asked. In a comparative analysis of the variation of network traits across four different studies, Campbell and Lee (1991) found that 'intimate' name generators (such as the GSS instrument) result in reports of relatively small, kin-centered, dense, homogeneous networks. Van Sonderen et al (1989, reported in Marsden, 1990) found that exchange approaches yield networks that are appreciably larger, and contain

a greater proportion of weak, distal ties than affective and role relation approaches. Other critical concepts important in my research are also known to vary according to the network measurement instrument used. For example, work by Campbell and Lee (1991) has revealed that there is a relationship between the restrictiveness of the name generator and the density (the extent to which alters are connected to each other) of the personal network. Name generators that generate kin-heavy personal networks are likely to also be dense because an individual's family members and friends tend to know one another, due to family relationships or residential proximity. Campbell and Lee's (1991) research did, however, present evidence that alternate name generators can produce equivalent results in terms of network composition, sex and race heterogeneity.

In their comparison of four different methods for measuring social networks, Bernard *et al* (1990) found that 90 percent of names elicited using the General Social Survey method also occur in networks derived from an exchange approach, but that Reverse Small World techniques fail to capture one-third of social support networks. Affective elicitors capture just 5.5 percent of the RSW network. With regard to business owners, Renzulli and Aldrich (2005) elicited the "core business discussion networks" of 347 current and nascent business owners. They then asked them from whom they could obtain one of four resources: legal assistance in business matters; financial or accounting advice; loan assistance with business loan or business financing; and expert advice. Around 36 percent of women and 38 percent of men did not obtain any of the four resources through a business discussion alter. Fewer than 2 percent of men could obtain all four resources from a discussion alter (parenthetically, no women could do the same). Furthermore, comparisons of the various approaches have revealed little mutual correlation between various measures (Bernard et al. 1990; van der Gaag et al. 2008), suggesting that each approach taps different indicators of social capital. Thus, choice of instrument depends on the way in which social capital is operationalized in the research design.

Because social capital is treated here as the array of resources obtained by an individual from their personal contacts, it is important to select an instrument that captures resources as well as ties, rather than ties alone. This excludes the Position Generator and Reverse Small World techniques. These approaches appear best suited for discerning diversity of ties and less for identifying network members that can actually be used for instrumental reasons. Fu (2008) asked three informants to complete a network diary and a Position Generator and found that while the Position Generator allowed informants to choose a large number of ties, the diaries showed that very few of these ties were actually useful. For example, even if the respondent indicates that they know a female pharmacist (Erickson 2004) or an individual with the surname Jones (Freeman and Thompson 1989), this tells us nothing about whether this alter a) possesses the resources the respondent needs and b) is willing to, or has previously exchanged them. Of course, the Position Generator occupations can be altered according to research question (for example entrepreneurs could be asked whether they know an accountant, a lawyer, a supplier and so on), but the lack of follow-up questions means that little can be discerned about the characteristics of these ties.

5.4 Reliability and validity

As Hansen (1995: 16) has pointed out, name generators may also "not necessarily gauge access to resources or willingness to make them available". Yet the four name generator approaches are sufficiently malleable so that the resources embedded in the networks can be identified. Thus, other elements must be given consideration in deciding which to use. Importantly, it is crucial that the network delineation technique selected identifies stable, repeatable data (*reliability*) that is accurate (*validity*), allows for meaningful comparisons, leaves little room for subjective interpretation (*objectivity*), and does not capture networks that are skewed towards strong or weak ties (*skewness*) (Kogovsek 2006).

TABLE 5.2 A COMPARISON OF SIX QUANTITATIVE NETWORK DELINEATION METHODS

Method	Validity	Objectivity	Skewness	Measures
Interaction approach	-	+	Strong	Network configuration and specific relationships; number of potential exchange relationships
Role relation approach	+/-	+/-	Strong/ Weak	Specific relationships in networks
Affective approach	+	-	Strong	Well-liked network members
Exchange approach/ Resource Generators	+	+	Strong/ Weak	Actual accessed resources
Position Generators	+	+	Weak	Accessed prestige (occupational)
RSW approach	+	+	Weak	Network size (extrapolated)

Sources:
Adapted from van der Poel (1993); Bernard et al (1990); van der Gaag et al, 2008

In table 5.2, these approaches are compared on the dimensions of validity, objectivity, skewness and content. It is clear that no one method meets all of the needs of this study. In terms of reliability, the interaction approach does allow for comparisons across respondents because the researcher can clearly define who should be included and excluded, for example by imposing a time boundary on interactions. However, as mentioned earlier, interaction instruments score low on validity because frequency of contact overestimates the strength of ties (Marsden and Campbell 1984; Marsden 1990). For instance one might record interactions with the person who delivers the milk everyday; hardly a meaningful interaction, and probably not someone who ought to be included in a 'social' network.

In contrast, definitions of ties using the role relations approach are generally more clear-cut and less likely to be subject to misinterpretation (Kogovsek and Hlebec 2008). The role relation approach is relatively quick and simple to administer, and therefore less burdensome for respondents than, say, the interaction approach. It is also less burdensome for respondents than other techniques and generally, are. However, it is overly discriminatory – an

important tie that falls outside of the role criterion (e.g. family, neighbour, business contact) will not be included in the elicited network. This means that objective comparisons cannot be made because not all respondents will have meaningful contact with all of the people named. This approach overestimates the proportion of partners/spouses in the network (because respondents tend to name a partner as the first alter), and underestimates network size when compared to the interaction approach (Kogovsek and Hlebec 2008). Less precise information on network members is ascertained, limiting the depth of analysis than can be performed on the data. For example, estimation of network composition is almost impossible unless every possible role relation is ascertained (Milardo 1992).

The affective approach is more successful is detecting important ties; interviewees are likely to interpret delimiters such as “individuals you like” or “people who are close to you” similarly. However, people may interpret degrees of importance differently (Fischer 1982b). Generators that elicit alters by asking questions about the subjective value of a tie, (e.g. “especially significant” or “close,”) risk problems with interpretation across respondents, leading to difficulties of representative reliability (Straits 2000). Furthermore, because this technique detects individuals for whom ego has some regard, it tends to under-solicit weak ties. This is fine for those interested in studying strong tie networks (Marsden and Campbell 1984), but is less than ideal in contexts, such as entrepreneurship where weak ties play important roles (Schenkel and Matthews 2009). Finally, the exchange approach scores highly in several areas. It manages to elicit the names of the alters with whom ego actually exchanges resources, can pick up on both strong and weak ties and does not rely on time frames or ambiguous terms like “friend” or “intimate”. By focusing on the exchange of resources, the delimiters for inclusion and exclusion of ties are standardized, facilitating comparison across respondents (Marin and Hampton 2007). However, the reliability and validity of exchange-based delineators are highly linked to question wording. Crucially, the type of elicitor used is strongly linked to sex composition of networks. For example, if

respondents are asked “who takes care of your house when you leave town?”, or “who can you call on to help with household tasks”, it is significantly more likely that a woman will be named (Bernard et al. 1990). Conversely, men tend to be chosen when the questions refer to people with whom you “discuss work decisions” or to whom you “loan money”.

5.5 A little-used alternative: The resource generator

The discussion above shows that the most commonly used data collection tools of network analysts have several deficiencies. It was difficult to select a collection technique that would meet the varying demands of this research study. A somewhat less well-known social capital measurement instrument, developed for use in the Survey of Social Networks of the Dutch (van der Gaag and Snijders 2003; 2005; van der Gaag et al. 2008) is the *Resource Generator* (RG). Using this method, respondents are asked about the people or organizations through which they have, or could possibly access certain favours, resources or assistance such as legal matters, childcare, moral support or mentoring. In one sense, the RG can be thought of as multiple name generators because a combination of the interaction, affective, role relation and exchange approach style questions can be used. Snijders (1999) has argued that the RG combines the economy and validity of the position generator with the detailed data provided by the name generator. It can be delivered quickly, thus reducing respondent burden without the requirement of a limitation on network size (van der Gaag and Snijders 2003). But the greatest advantage of the Resource Generator, as its name suggests, is its ability to capture and quantify the resources *actually* appropriated by ego, rather than the resources *potentially* accessed. Contrary to Marsden’s (1990: 450) argument that “how well data collection methods can identify social contacts” is the most crucial consideration when choosing a network measurement instrument, I argued in chapter 3 that it is essential that networks capture the resources extracted from the network.

Given the advantages, it is surprising that the Resource Generator has been so under-used in social capital studies. Aside from the Dutch studies, I could only find one instance of the Resource Generator being used in a study of business networks (van der Gaag et al. 2008), and this was a pared down version used in combination with an exchange name generator approach. Like all instruments, the RG does have drawbacks. Firstly, because individual alters are not enumerated, certain network measures (such as centrality and density) cannot be measured using this technique. Indeed, of the traditional network metrics, the Resource Generator can only really discern network diversity and range. Estimation of other measures of network composition is not possible. I view this a small problem because, as I have already established these morphological traits are less important to the aims and objectives of this study than the role of resources and network diversity. Thus, these limitations do not preclude the RG from being employed here. Secondly, unique identification of persons named is not possible with the Resource Generator. That is, multiple persons in varying roles cannot be distinguished. So, if the respondent indicates that they received two different resources (say financial help and emotional help) from “a friend”, it is not possible to identify whether this is the same person. However, this problem is not limited to the RG, it is also true of the role relation approach (Kogovsek and Hlebec 2008).

Thirdly, only one person can be named in response to the provision of each resource. If we remember that name generators also tend to elicit a subset of all persons who could be named (Brewer 2000), the RG should be considered no less comprehensive that other traditional measures. The main disadvantage of the Resource Generator is perhaps its under-use. Although its creators have argued that it scores high on reliability and internal validity (van der Gaag and Snijders 2003; van der Gaag and Snijders 2005), the instrument has not been subjected to rigorous empirical testing in the field of entrepreneurship (but Webber and Huxley 2007 report that the instrument performs well in terms of test-retest reliability and validity). Employing this

instrument in the present study offers a chance to explore the RG for future social capital research.

5.6 Method of data collection

Now that a network instrument has been decided upon, it is necessary to determine how to deliver it. One means of collecting network data is through contact diaries. Informants are issued with journals or logbooks in which they record all interpersonal contacts meeting criteria established by the researcher over a specified period of time. This is easily adapted to the Resource Generator; a simple version might require respondents to record all business exchanges from network contacts. While this approach is perhaps the least common in network research, it has been found to yield extremely rich and complete or near-complete network data (Fu 2005) and is therefore regarded as a kind of methodological 'gold standard' (Lin and Erickson 2008). Fu (2005) for example, gathered data from 3 participants over 3-4 months using a sophisticated diary method. When collected, the 3 diaries contained in-depth data on 8001 interactions with 2685 unique individuals; substantially more than generated in the typical interview.

There are other advantages associated with diary methods. Recording data in this way helps to directly identify those *actual*, rather than potential social interactions that formulate and sustain the network structure. The weakness of name generators in generating networks that are skewed towards friends, family and other "strong" contacts can therefore be overcome using diaries. And, since entries are recorded at regular intervals (often daily), problems of informant accuracy or recall are reduced. There is little room for researchers to manipulate or affect network descriptions, as is often the case in interviews (Marsden 2003). Finally, the diary method also facilitates the collection of the informant's subjective observations and evaluations of the informant (e.g. meaningfulness or pleasantness of contact). It would be very difficult to garner such rich data in a fifteen-minute telephone interview.

Given the considerable advantages, the diary method was initially considered for use in the current study. However, the method was ultimately rejected because it is incommensurate with the egocentric approach. Because this study is concerned with the role played by gender in the construction and use of social networks, the unit of analysis must necessarily be the individual. Diary methods which generate vast amounts of contact data from a small cohort of informants create a situation in which the *alters*, not *ego*, become the unit of analysis.

A less conventional method of collecting social network data involves making use of the Internet - either posting a survey online, or sending it via email. Web-based survey methods have been successful in the collection of data relating to attitudes and opinions (Ganassali 2008) but have only rarely been used in the collection of network variables (Lackaff 2012). Undoubtedly, this is linked to the predominance of name generator instruments – the multitude of tasks associated with delineating a network in this way (listing and editing the alters, recalling and describing their characteristics, evaluating the quality of interactions, and so on) seems to necessitate interviewer-assisted research methods. As Kogovsek (2006: 249) explains, without the researcher present, network instruments that are overly complex may lead the respondent to 'decide early in the survey that it is too complicated, too long, or just too slow and leave the full task unfinished".

The economy and low level of cognitive complexity of the Resource Generator makes it ideal to deliver via electronic methods. To date, no researcher has tested how this method of network delineation fares online. Allowing respondents to complete the questionnaire online, however, seems to offer a number of significant advantages. There are significant cost savings where surveys and cover letters do not have to be printed and mailed (Clayton and Werking 1998). In one comparison, Kaplowitz, Hadlock and Levine (2004) calculated that a completed mail questionnaire cost an average of almost

USD $11 per respondent compared with less than USD $2 for an email survey.

The self-administered mode gives the respondent greater liberty in deciding when and where to complete the survey; the sense of anonymity may increase response rates and truthfulness in regard to personal and sensitive questions (Kogovsek 2006). Network volume is known to be prone to considerable interviewer effect (Marin 2004) thus web surveys may increase the reliability and validity of network measures. Although probing, motivating and assuring the respondent is only really possible in interviewer-assisted methods, web surveys can approximate this role in the innovative use of rich visual features and navigational aids (Kaplowitz, Hadlock and Levine 2004). In any case, Brewer (2000) has shown that prompting for contacts in network surveys may increase the number of names elicited by only a modest amount.

The anonymity of this mode of data collection might reduce the incidence of "socially desirable" responses. Additionally, the gender of interviewer and informant are said to impact on research outcomes in interview-assisted modes; this is especially so where gender is the subject matter. It is an under-researched area, but studies on research undertaken by female researchers in male-dominated settings suggest that depending on the social context, a female researcher can be invisible or hypervisible (Gurney 1985; Warren 1988). Because gender is created in interaction, the process of fieldwork is itself gendered. Warren (1998: 10) argues that therefore, "all knowledge is gendered".

Just as businesspeople can use virtual networking to cross the gender barriers imposed by bodily physicality (Sappleton 2011), electronic methods of research could allow researchers to reduce the 'gendering' of research outcomes. "When communication lacks the dynamic personal information of face-to-face communication or even of telephone communication, people focus their attention more on the words in the message than on each other.

Communicators feel a greater sense of anonymity and detect less individuality in others. They feel less empathy, less guilt, less concern over how they compare with others and are less influenced by social conventions" (Sproull and Kiesler 1991: 40). In particular, the removal of nonverbal cues and the ephemerality and plainness of text-speak reduces people's fears of appearing foolish or inferior to others and increases self-confidence. In face-to-face interaction, high-status people (often men) tend to dominate group discussions (Carli 2006) but research shows that online interaction gives peripheral individuals a voice, allowing them more of a chance to contribute equally (O'Brien 1999; Martin and Wright 2005).

This is not to say that collecting the data over the Internet is not problem-free. The deficiencies most frequently discussed in the literature are those associated with response rates and representativeness. Although there is some evidence that preceding surveys with an advance mail notification can result in response rates comparable to mail surveys (Kaplowitz et al. 2004) growing levels of SPAM, technical problems and concern over Internet security can hinder response levels. Indeed, email surveys typically fail to reach the response rates that mail surveys achieve. Response rates are important because non-response creates smaller sample sizes and is therefore associated with lower levels of representativeness. It must be noted here that response rates and representativeness are not necessarily correlated. Representativeness is more important than response rates for generalizability and the representativeness of a study does not necessarily increase monotonically with response rate (see Cook, Heath and Thompson 2000 for further discussion). Non-response bias occurs when a significant proportion of a sample does not respond to a survey *and* these individuals differ in some way for those who do respond. Low levels of response are less of a problem if non-response is random, and low response rates can be compensated for in some way by taking large samples. Kaplowitz *et al* (2004) compared the response rates of five groups of students, some of whom received an email version of a survey and some who received an equivalent

mail version. Despite the lower response rates of students that received the survey by email only, the only characteristic in which the group that answered the survey on the Web differed was that they had a younger mean age. Furthermore, despite these differences, there was no effect on the substantive findings. This work also revealed some tips for increasing email response rates – sending postcards to respondents in advance of the email significantly increased response rates. Fan and Yan (2010) suggest that follow up reminders can double the response rates of email surveys; personalizing emails is also associated with higher response rates.

A further problem exists with representativeness. Online methods effectively exclude from the sample those individuals without access to the Internet. However, Internet access has penetrated business establishments to a much greater degree than household establishments (Smith and Spitz 2010; Pearce and Rice 2013) although it can be expected that some smaller establishments may remain offline. Finally, since network surveys are complex and because respondents may simultaneously be performing other tasks while completing the questionnaire (Kogovsek 2006), attention to detail may be reduced and errors may occur.

Two recent studies point to the potential for the web for collecting social network data. Kogovsek's (2006) comparison of web and telephone methods of collecting data using three name generators revealed no differences in network structure or composition, and high levels of validity for web measures, but found that web methods score low on test-retest reliability for variables measuring characteristics of ties (frequency of contact, closeness, duration of relationship). Kogovsek blames the difference on the complexity of the network measure and the possibility that respondents make errors because they speed through the survey. Manfreda *et al* (2004) collected network data online from 1009 respondents using a name generator method. They found that the number of alters given was associated with the design of the survey (specifically, the number of spaces provided for alters and the wording of the

generator), but this had no statistically significant effect on the substantive results. Two other difficulties lay with the use of open ended textboxes which allow respondents to enter the names of alters. This led to some validity problems because there existed (albeit rare) cases where respondents entered general expressions ("me", "myself"), plurals ("my parents") or unusable answers into the textboxes. However, this problem is absent where alter names are not required, as with the Resource Generator. The second problem was associated with name interpreters. The level of questionnaire discontinuance was positively associated with the number of alters given, because the amount of alter information requires rises exponentially with the size of the network. Again, this is less of a problem with a resource generator because the number of questions is the survey is fixed.

Summary

Methodological choices in social network studies amount to a cost-benefit decision. For example, diary methods require maximal investments of time-and-effort but can generate extremely rich and accurate information. Responses yielded using interviewer-assisted methods may be influenced by both the gender of the researcher and the researched. Ultimately no method of instrument of instrument delivery is going to be 100 percent perfect (Bernard, Killworth, Kronenfeld and Sailer 1984; Brewer 2000). "Researchers may never eliminate all error in the survey measurement of personal networks – respondents will forget relationships that exist or report those that do not" (Campbell and Lee 1991: 218). Many researchers advocate mixed methods of data collection or the use of multiple research instruments to overcome the problems associated with collecting network data (Marin and Hampton 2007; O'Donnell, Gilmore et al. 2001; Kogovsek 2006). But mixed-methods network research designs are extremely under-developed and under-utilized (Moser, Groenewegen and Huysman 2013). This study certainly does not go so far as to combine methods of collection and delineators in order to attempt to attain the holy grail of error-free data. But, it is hoped that the use of the Resource Generator and an online method of collection goes some way to responding to

calls for methodologies that are practical, elegant and that capture the actuality rather than the potentiality of social networks (Moore 1990; Bernard et al 1990; O'Donnell et al 2001; Silversides 2001).

5.7 Sampling strategy

5.7.1 Study location

I had originally envisaged that this research would be conducted in the UK. However, the US was eventually selected as the site of study for theoretical and methodological reasons. From a theoretical perspective, there is evidence that women are less bound by stereotypes in the US than they are in the UK (Schein 2001), and that American women have less preference for single-sex formalized networks and are more confident and instrumental in their networking abilities than their British counterparts (Travers, Pemberton and Stevens 1997). Occupational segregation appears to be lower in the US than in many European nations (Crompton 2007; Hellerstein et al. 2007) and the female rate of entrepreneurship in the US far outstrips that of the UK[12]. These observations are likely linked to the American entrepreneurial spirit - American culture places extraordinarily high value on success and being one's own boss (Koellinger, Minniti and Schade 2007).

From a methodological standpoint, there exists is the UK no sex-disaggregated, three-digit sector small business dataset[13]. The VAT register and Inter-Departmental Business Register provide detailed data on sector of business, but not on sex of business owner (Marlow et al. 2008). The Labour Force Survey provides only sex disaggregated self-employment data and the Annual Small Business Survey is very small. In contrast, US data sources on women's enterprise are myriad and more detailed (Fairlie and Robb 2009).

[12] This statistic is refuted by Marlow *et al* (2008). They argue that the definitions and measures used to calculate the rate of female entrepreneurship differ in the two countries, making comparisons between the two difficult.

[13] This issue is not just confined to the UK. For example, French national databases do not indicate sex of owner (Orhan and Scott 2001). This challenge may be partly responsible for the preponderance of convenience and/or snowball sampling procedures which has been blamed for hindering the progress of research on women's entrepreneurship (Moore 1999).

Relatedly, in the UK, there exists no publicly available, up-to-date, national list of small businesses[14], but in the USA there are several databases that allow researchers to extract lists of firms by NAICS (North American Industrial Classification System) and geographic area, allowing for the relatively simple construction of a sampling framework.

5.7.2 Who exactly is being researched?

With location decided upon, a sampling strategy was devised. The problems of sampling business owners are well discussed elsewhere (Kalleberg, Marsden, Aldrich and Cassell 1990). Unlike populations of individuals, there is no clearly delineated business 'universe' from which one can draw a sample (Curran and Blackburn 2000). Thus, it becomes essential that the researcher defines clear inclusion and exclusion criteria when designating who is eligible for inclusion in the final sample. Up to now, I have been using the terms "entrepreneur', 'business owner' and 'self-employed' interchangeably. But defining just who should be included in these categories has been described as a "conceptual minefield" (Allen and Truman 1992). Allen and Truman's (1992: 172-171) example of a female graphic designer is worth quoting in full as it sums up the challenges involved:

> "She uses the services of a child-minder and also employs a cleaner (both women). Clearly, she is self-employed, but what of the child-minder and the cleaner? They are undertaking work that the graphic designer would normally be expected to carry out herself for non-financial rewards. They make it possible for her to engage in remunerative self-employment. Are they employees or sub-contracted labour? If they are employees, is the graphic designer to be classed as running a small business with employees rather than a sole trader? Alternatively, are the child-minder and the cleaner to be considered as self-employed in their own right? If so, are all three women to be seen as running inter-dependent businesses? If the child-minder and the cleaner have dependants who are in turn cared for by others who are paid for their services, are they self-employed with employees or contractors of sub-contracted labour? If they do not pay those who provide care, how are they

> and the carers to be categorised? Would the same difficulties arise if the graphic designer were a man who pays for the services of a child-minder, a house cleaner and a window cleaner to enable him to carry out his business activity? If his wife or domestic partners cared for his/their children and cleaned the house would these questions be raised or the situation simply taken for granted by researchers?"

Given the confusion, it is little wonder that the definitions offered by researchers as precursors to their own study vary considerably. To give just a couple of examples, Stanworth and Stanworth (1995) view a self-employed person as an individual who owns the means of production. Since a business owner, by definition also owns the means of production, this view of a self-employed person seems to offer little to differentiate these individuals from the owner of an SME. Cowling and Taylor (2001) distinguish between independent self-employed people and the self-employed with employees ('job creators'), but refer to both as "entrepreneurs". Similarly, researchers differ in their definitions of just who is a 'woman business owner. For example, Cuba and Decenzo (1983: 41) define her as someone who "runs her business as a primary source of income, not as a hobby or a part-time occupation". Goffee and Scase (1985) however, include this latter category of individual in their well-cited typology of women owners.

The problematic definition of 'entrepreneurship' is not restricted to individual studies – it exists too in large-scale surveys and national statistics in the US (Marlow et al. 2008) and elsewhere (Holmquist and Sundin 1988)[15]. The four main sources of US data[16] define a woman-owned business in different ways. The Survey of Women-Owned Business Enterprises, for example, defines a woman-owned business as "51% owned, operated and controlled by a woman

[15] For example, the 1980 Swedish census revealed that almost 65000 women stated that they worked in a business of their own. This figure was substantially higher than the official figure reported in government statistics of 43000. Holmquist and Sundin (1988) speculate that the disparity represents the existence of paid and unpaid women who work in businesses with their spouses (so-called 'copreneurs').

[16] The Survey of Business Owners/Survey of Women-Owned Business Enterprises; Statistics of Income data; Bureau of Labor Statistics data published in the Employment and Earnings Reports; and the Current Population Survey self-employed data

or women" but the Current Population Survey reports the sum self-defining as "self-employed" (Fairlie and Robb 2009). The US Census Bureau treats "firms in which women own 51% or more of the interest or stock of the business" as women-owned; a classification which has been criticized as a "narrowly drawn definition [which] excludes the broader contribution of women to enterprise" (Marlow *et al* 2008: 338). More broadly, the Center for Women's Business Research considers firms that are wholly or majority female owned as well those that are co-owned by men and women as women-owned. Individuals who are classed as salaried directors of their own firms may be excluded from these classifications.

Like Stevenson, (1990: 441) I believe that there are many forms of entrepreneurship and academics should "develop new notions of entrepreneurship which more closely 'fit' the range of experiences that different people have".[17] Haber *et al* (1987) have for example shown that the percentage of waged workers who owned businesses in 1983 was 60 to 75 percent larger than the percentage reported as self-employed in the Current Population Survey. Therefore, I allowed respondents to define whether they were entrepreneurs and whether their firms were woman-owned, man-owned or equally man/woman-owned, in accordance with the definition of a woman-owned business given in the Small Business Act[18]. This course of action was also in keeping with the realist philosophy guiding the research study that holds that it is the perceptions of the focal actor, rather than an external observer that is important in evaluating events. To this end, the opening page of the questionnaire asked respondents to disqualify themselves if they were not business owners. Respondents did seem to bear this sentence in mind

[17] In research on the Chicago 'projects', Vankatesh (2008: 191) encountered entrepreneurial "women who sold food out of their apartments or catered parties; women who made clothing, offered marital counseling or baby-sitting; women who read horoscopes, styled hair, prepared taxes, drove gypsy cabs, and sold anything from candy to used appliances to stolen goods".

[18] The Small Business Act defines a small business concern as owned and controlled by women if 1) at least 51 percent of small business concern is owned by one or more women or, in the case of any publicly owned business at least 51 percent of the stock of which is owned by one or more women; and 2) the management and daily business operations of the business are controlled by one or more women.

when deciding whether or not to complete the survey. For example, one person responded:

Dear Natalie,

I would be happy to participate, but your quill is in the wrong well.

I closed the doors on the full-service operation in 2003, and am working in semiretirement from my home--no office, no employees, just me, my laptop, and a cup of coffee.

If you want me to complete the survey, answering for the business in its pre-2003 days, let me know. I'll be happy to help.

Otherwise, good luck with your survey.

Best,
XXX

A further challenge is presented by defining what is a gender typical or atypical sector. There are precedents in the empirical literature on occupational and voluntary association segregation but, again, these differ according to research goals. For example, Popielarz (1999) defined a gender-segregated voluntary organization as one that is 90-100 or 0-10 percent female ('integrated' organisations were a rather generous 10-90 percent female). Browne (2006) defines gender-dominated occupations as those with concentrations that are greater than a 10 percent margin either side of their percentage in the labour force. With regard to entrepreneurship, the Center for Women's Business Research uses an entirely different definition. It defines nontraditional industries for women as those broad industrial categories that represent 5% or less of all women-owned businesses (CWBR 2005). Using this designation, women-owned businesses are those operating in agriculture, forestry, fishing, mining, construction, manufacturing, transportation, communications, public utilities, and wholesale trade. Traditional industries for

women business owners are thereby defined as services, retail trade, finance, insurance, and real estate.

The problem with arbitrary numerical delimiters is that the notions of "traditionally male (female)", "male (female)-dominated" and "gender (a)typical" can become blurred resulting in artifactual distinctions. It is important to remember that these three notions are not identical. For example, the CWBR definition treats Real Estate as a traditional industry for women, but in terms of sex ratio, this industry remains heavily male-dominated[19] Sappleton's (2009) analysis of the social capital of self-employed Europeans found that being self-employed in a gender typical or atypical was a predictor of social capital, but being located in a male- or female-dominated sector was statistically insignificant. With this in mind, I decided to define numerical domination of an industry based on Kanter's (1977) definition of a ratio of 15:85 or lower. Kanter (1977) argued that this was the ratio at which women achieved 'token' status in male-dominated firms, and experienced the greatest levels of discrimination. Additionally, this ratio seems reasonable in ensuring that the selected sectors are both a) dominated by one sex and b) not typical for one gender. It is acknowledged that the numerical dominance of occupations does not necessarily give rise the gendering of occupations. However, Heilman (2001) and Rudman and Glick (2001) have noted that gender stereotypes have both descriptive and prescriptive elements, and that these are interlinked. The observation that an occupation is dominated by one sex (the descriptive element, or the idea that say, this is what women *do*), gives rise to the gendering of that role (the prescriptive element, or the idea that this is what women *should* do). Where occupations are heavily sex-segregated, sex is both the most readily observable and salient characteristic of the occupation, and is thus used to denote gendered expectations about the behaviour of the incumbents of the occupation (Kram and Hampton 1998).

[19] According to the US Census Bureau's 2007 Survey of Business Owners, 73.1 percent of owners of Real Estate, Rental and Leasing Firms are men.

Selecting a heavily skewed ratio would thus increase the likelihood that role expectations would be gendered.

Some other considerations guided the selection of sectors for the study. The industries selected should have sufficient numbers of local businesses owned by women and men to allow for meaningful statistical comparisons. The sectors should be those that require a high degree of intra-sector networking activities, recurrent rather than episodic transactions and/or word of mouth marketing and information transfer. For example, both plumbers and gardeners rely on word of mouth to gain work. Ideally, sectors should be customer-facing since this increases the level of social interaction business owners are likely to engage in (Silversides 2001) and individuals that work with people generate greater social capital than people that deal with machines (Timberlake 2005). Because services are simultaneously produced and consumed "the social interaction between the recipient and the provider is to a large extent the service rendered" (Gutek et al. 1999: 49). For these reasons, the service sector was expected to be a fertile field of study. However, it was not possible to find any other service sector beyond childcare services that could satisfy the 15:85 ratio and therefore be deemed female-dominated. Even in cosmopolitan New York City, the number of recorded male-owned firms significantly outnumbers women-owned firms in such 'traditionally female' sectors as floristry, secretarial services, wedding planning, women's clothing retail and household cleaning (*ReferenceUSA* 2009)[20]. For this reason, only four, rather than the target five sectors were selected for study; construction (male-dominated), sound recording (male-dominated), childcare (female-dominated) and publishing (integrated). The special implications of the childcare sector are discussed further in the concluding chapter.

[20] It should be noted that it is possible to identify heavily female-dominated sectors using self-employment, rather than business ownership data.

Although restricting the sample in this way could have made recruitment of respondents more difficult, this is offset by the value of comparing sectors similar in terms of the qualifications required to trade and whether they are business or consumer facing. Such factors are likely to affect networking activity. In order to further reduce confounding factors, the sample was also restricted to urban businesses. Rural traders are known to have more restricted networks than those located in the city (Bird and Sapp 2004; Runyan et al. 2006); cosmopolitanism also reduces individuals' sense of being bound by tradition, and as such is linked to sex integration (McPherson and Smith-Lovin 1986). New York City was selected as the city of study because with 305,145 (32.3% of the total) women-owned firms, it is the US city with the largest concentration of firms owned by women (US Census Bureau 2011b). Additionally, this city has a very high concentration of sound recording firms, book publishers, and, because of the recent real estate boom, construction firms. Finally, since the presence of partners and shareholders complicates networking activities, where businesses were organized as partnerships or corporations, responses from just one owner were accepted.

5.7.3 The sectors

The childcare industry is populated by a variety of establishments. Most preschoolers in nonparental daycare attend childcare centers, with others attending home-based programmes, and some being cared for by nannies or babysitters (Laughlin 2010). According to the US Census Bureau, there were 554,927 women-owned organisations supplying child day care services in 2007 – 74.6 percent of the total - generating $13,429,653 in receipts (this market is supplemented by an unregulated market, the size of which is unknown). Slightly less than half of establishments providing childcare are operated on a for-profit basis, with the remainder are operated by community agencies, hospitals, colleges and universities, or religious institutions. Most enterprises are small: in 2008, 86 percent of workers in the industry were employed in establishments employing 50 members of staff or fewer (Bureau of Labor Statistics 2010a). A 2004 publication reported that there were 10,000

small childcare businesses in New York City employing 44900 people (Child Care Inc 2004). In 2008, 29 percent of childcare workers nationally were employed on a part-time basis, and in 2010, 97 percent of preschool and kindergarten teachers and 94.7 percent of childcare workers were women (Bureau of Labor Statistics 2010b). Accordingly, the average wage in the sector is low: a 2005 estimate of $20,850 puts the average wage at less than half the average New York State salary of $51940 in the same year (New York State Department of Labor 2007). Finally, opportunities for self-employment in the industry are high: in 2008, there were 428,500 self-employed childcare workers alongside 859,200 waged-and-salaried staff (Bureau of Labor Statistics 2010a).

Businesses in NAICS 51113 are engaged in the design, editing, and marketing activities necessary for producing and distributing books in print, electronic, or audio form. Publishing is big business in the USA, with almost 2500 firms generating $41 billion in sales in 2008 (US Census Bureau 2006; Standard & Poor 2009). Most firms are small 'mom-and-pop' concerns although there are a small number of well-known giants with a large market share – for example, almost 10 percent of firms have no employees, 50 percent have employee 4 people or less and just 67 firms employ more than 1000 people (US Census Bureau). It is difficult to estimate the level of employment segregation because the industry is comprised of a myriad of jobs from design and production to marketing and sales. Greco (2004) has suggested that while women hold a large proportion of jobs in the industry, the vast majority are at lower and middle managerial levels 2002 data shows that 32.5 percent of firms in the publishing sector (including firms that publishing newspapers, magazines and other periodicals as well as books) were women-led (US Census Bureau 2006).

The construction industry is the industry that has attracted the greatest amount of empirical attention from researchers concerned with gender segregation (e.g. Clarke and Wall 2004; Eisenberg 2004). Just 2.6 percent of

all workers in construction and extraction occupations are female, but the figure varies depending on the job. For example, 7.2 percent of painters, construction and maintenance workers are women, compared to just 1 percent of roofers and 1.5 percent of electricians (Bureau of Labor Statistics 2010b). Perhaps surprisingly, more women are to be found as owners of construction firms than as workers in the sector. According to the latest statistics, 8.01 percent of construction firms are wholly female owned, and 24.10 percent are wholly owned by women or jointly owned by women and men (US Census Bureau 2011b).

The sound recording industry is comprised of establishments engaged in record production and distribution, music publishers and sound recording studios (US Census Bureau 2004). The industry is comprised of a large number of small firms (Hull 2004); the US Census Bureau reports that in 2007, there were 6566 paid employees, working in just 1722 sound recording establishments – that is just 3.8 workers per firm (US Census Bureau 2011a). Additionally, it is a growing industry, with the number of establishments jumped 13 percent between 2002 and 2007 and average salaries are relatively high at over $44,000 in 2007 (*ibid*). The industry is also heavily segregated; according to the latest available figures from the Bureau of Labor Statistics, just 9.9 percent of broadcast and sound engineering technicians and radio operators are women (Bureau of Labor Statistics 2010b)

5.7.4 Extracting a sample

With this framework in mind, a sample was constructed using the following procedure. Firstly, a database was required that would enable the identification of businesses by gender of owner, North American Industrial Classification System (NAICS), *and* region. Several US databases are available, but few contained all the auxiliary information required to draw a

stratified sample[21]. Two of the broadest databases are *Dun & Bradstreet's Selectory* and *ReferenceUSA*. Both purport to be comprehensive, providing detailed data on over 28 million US firms, including information such as gender of executives, business size, year established, sales volume and employee size. The Dun and Bradstreet database in particular is well used in entrepreneurship research, particularly women's entrepreneurship (Brush and Edelman 2000) and, while there are some problems with coverage (because of the time lags in its compilation) has been found to be fairly representative in terms of age, size and industry (Kalleberg et al. 1990).

In spite of their popularity, both these databases have been criticized for being incomplete, inaccurate and out-of-date and there are known to be problems with the way each record data (Candida Brush, personal communication; Brush and Edelman 2000)[22]. Unfortunately, this is a problem that is not just limited to these databases (Moore 1999). Constructing a representative sample in any study of small businesses is especially complicated by the diversity and rate of churn of the small business population (Curran and Blackburn 2000). This means that new businesses may be missed and discontinued firms may remain on the databases.

In an effort to offset the problems of coverage, I attempted an approximation of the study population by amalgamating businesses listed in both databases. Women- and men-owned firms in the following sectors were then extracted: Construction (NAICS 23), Book Publishing (NAICS 51113), Child Care (NAICS 6244) and Sound Recording (NAICS 5122). The total number of cases extracted for each population is detailed in table 5.3. It is perhaps

[21] Two popular databases had to be rejected for different reasons. *Ward's Business Directory of U.S. Private and Public Companies* unfortunately does not provide data on gender of owner, although it is possible to discern this to some extent by scrutiny of first names. And, although the US Small Business Administration's *Small Business Database* does allow for the mining of businesses defined as 'woman-owned'; because it is constructed based on firms that wish to be considered for government contracts, some industries are self-selected out, and many firms are omitted. This includes businesses in the childcare industry.

[22] For example, Dun and Bradstreet collects data on incorporated firms and ignores sole proprietorships and partnerships

noteworthy that in all cases, far more records were returned using *ReferenceUSA* than the more commonly used Dun & Bradstreet. This is likely related to the latter's tendency to ignore firms that are organized as sole proprietorships or partnerships. Regardless, all records were combined into one central database.

TABLE 5.3 STUDY POPULATION

NAICS 2007	Description	Database	No. of women-owned businesses	No. of men-owned businesses
23	Construction	Dun & Bradstreet	64	853
		ReferenceUSA	409	1873
511130	Book Publishers	Dun & Bradstreet	33	362
		ReferenceUSA	131	196
5122	Sound Recording	Dun & Bradstreet	10	129
		ReferenceUSA	70	255
6244	Child Day Care	Dun & Bradstreet	8	108
		ReferenceUSA	218	45

Notes
The sample was constructed on 13 April 2009 and should be seen as a snapshot of the number of enterprises in existence at that time. Because construction is such a large industrial sector and it was unclear which four-digit construction category held the greatest concentration of women-owned firms, the two-digit classification was used. But in reality, virtually all women-owned construction companies were located in the following four digit classifications: 2361 (Construction of Residential Buildings), 2381 (Foundation, structure, and building exterior contractors), 2382 (Building Equipment Contractors) and 2383 (Building Finishing Contractors).

The database was examined by sight and duplicates removed. However, many errors were discovered during this process. Most obviously, some businesses were included in wrong NAICS codes. In the most extreme examples, a freelance author was recorded as a construction firm, and a telecommunications company was recorded as a publishing company. Additionally, some firms were categorized in two or more industrial sectors. For example, a well-known music company was listed in both NAICS 5122 (Sound Recording) and 51113 (Book Publishers) and a firm specializing in acoustics was listed in 5122 (Sound Recording) and 23 (Construction). Where possible, these errors and overlaps were removed, but, given the size of the database, it is possible that some errors remained. By including a survey

question that allowed respondents to determine just one sector in which they were located, it is hoped that these duplicates would be resolved. In any case, such cross-industry duplicates accounted for less than 0.1% of the total cases. Less easy to resolve was that many firms were recorded as both "woman-owned" and "man-owned"[23]. In these cases, duplicates were removed and the firm was classified as "ownership uncertain". Unless the business owner responded to the questionnaire, it is impossible to determine ownership of these firms. This is an important problem that future researchers should be aware of; the accuracy of gender-stratified samples is called into question if gender of owner is inaccurate in national databases. The final sample, taking account of errors and duplicates is shown in table 5.4.

TABLE 5.4 FINAL SAMPLE

	No. women-owned (*%*)	**No. men-owned (*%*)**	**No. ownership unclear (*%*)**
Construction	431 (*49.4*)	431 (*49.4*)	10 (*1.1*)
Book Publishers	89 (*37.2*)	89 (*37.2*)	61 (*25.5*)
Sound Recording	57 (*44.5*)	57 (*44.5*)	14 (*10.9*)
Childcare	143 (*48.5*)	143 (*48.5*)	9 (*3.1*)

Conventional random sampling procedures are popular in egocentric network studies (Marsden 1990), and I used this strategy here. Given the small cell sizes and the use of email as data collection tool, I had hoped to sample the full population in each sector, However, because of the sex-based disparity in the sizes of the cells, I decided to sample all firms in the smallest sized cell in each sector, matched with a random sample from the opposing cell. If all were sampled, the number of male-owned businesses responding to the survey might swamp the number of female owned firms. So, for example, all 143 men-owned childcare firms were included in the final sample, matched with 143 woman-owned childcare firms chosen randomly with the use of a number generator. All firms with uncertain sex of owner were included in the final

[23] This may have arisen because these databases allow searches by gender of lead executive (the first executive noted in the personnel data), rather than gender of owner *per se*. In most cases, the first executive listed in the CEO, President or Owner, but in many cases it is simply a senior manager of the firm

sample. All in all, 1534 businesses were included in the final sample. Email addresses were purchased from *ReferenceUSA* and efforts were made to locate email addresses for entries not held by them. Email addresses were found for approximately half of all owners. 700 business owners were included in the final sample.

5.8 The data collection instrument

A 57-item questionnaire was developed (appendix 2) with the aims and objectives of the study firmly in mind. The survey consisted of four parts. The first part requested data about the firm, the second section asked about experiences of discrimination, the third included the resource generator, and, in an effort to reduce dropout, personal data was requested in the final section.

Firm data

The respondent was asked to supply the name and zip code of the firm as a means of checking that each response was provided for a unique firm, that the enterprise was located within the New York City limits, and as a way of screening the respondent for inclusion in the final sample. The respondent was asked to provide details about the size of the firm in a number of ways: by identifying the age of the firm (in years and months), the stage in the business cycle (planning, start-up, young, established) (derived from (Klyver and Terjesen 2007) and (Greve and Salaff 2003)) number of employees (if any), and legal status from a choice (Sole Proprietor, Partnership (limited or general), Limited Liability Company, Corporation (C or S types) derived from the U.S. Census Bureau Survey of Business Owners (US Census Bureau 2011b). These questions were asked because the size of a company has been found to be a good proxy for both the volume of its initial resources and its need and capacity for resource acquisition, as espoused by the term *liability of smallness* (Bruderl and Schussler 1990). Businesses designated as 'S' corporations, for example, are not taxed at the federal level, whereas 'C' corporations face double taxation. 'S' corporations may find it easier to secure

finance than sole proprietorships because where firms are solely owned, the costs of bad debts fall on creditors. Furthermore, previous researchers have found links between business size/age and network traits such as size and diversity (Greve 1995; Hansen 2000) and gender differences in network traits seem to dissipate as the business matures (Klyver and Terjesen 2007). Owners were also asked whether they established or inherited their firm because this too may be related to levels of social capital. *De novo* firms require brand new resources whereas non-founders acquire firms with a ready supply of contacts, customers and other valuable business relations (Sobel 2002).

Respondents were given the US government definition of a woman-owned firm: "a woman-owned business is a business that is at least 51% owned, operated and controlled by a woman or women" (US Census Bureau 2011b). They were asked to choose whether they considered their firm to be woman-owned, man-owned or equally woman/man-owned. An 'I don't know' option was also provided. Here, respondents also indicated their firm sector from the four options (Childcare, Sound Recording, Construction and related, Publishing and related).

Owner data

Drawing on the extant literature linking human and social capital (Manolova, Carter, Manev and Gyoshev 2007; Roomi 2007; Hindle et al. 2009; Bhagavatula et al. 2010), several questions measuring *general* human capital were posed including highest level of education, college major (if the respondent had a degree) and previous experience of running a business. Human capital theorists have distinguished between generic and specific human capital, and there rage considerable debates regarding the type of capital that is most beneficial to the firm and to the individual (Colombo, Delmastro and Grilli 2004). To facilitate comparisons between generic and specific human capital, the survey collected data on human capital that is relevant to the venture run by the respondent. To ascertain work experience,

respondents were asked to indicate whether they had any other experience in their current industry (as a hobby, as an employee, as a business owner, as a student, or unpaid work experience). Respondents could select as many sources of experience as they wished. Because links between social capital and business performance have been highlighted previously (Roomi 2007), performance indicators were also collected at this stage; information was requested on sales revenue, gross profit and personal income in the previous 12 months in whole integers.

Other owner characteristics collected at this stage were owner name, year of birth, ethnicity, and weekly hours worked in that business. Age can be regarded as a proxy for life experience and embodied human capital and is linked to social capital levels (Fischer 1982a; Putnam 2000). Regarding family characteristics, respondents were asked their marital status (single never married, married, cohabiting, divorced/separated, widowed), whether they had any children under 18 and living at home, and if so, the age of the youngest child. These questions were asked because marriage childrearing places men and women in different structural positions with respect to the flow of resources in social networks (Wellman 1985; Munch et al. 1997) and the presence of children can interact with gender when key network members are forming opinions about entrepreneurs' abilities (Chesser 1998).

Segregation and perceived discrimination

Respondents were asked to indicate the proportion of certain groups of individuals that were the same sex as the respondent on a five-point attribution scale (all, most, about half, some, none). A 'not applicable' option was also available. A five-point attribution scale was selected over the seven-point alternative for practical reasons: a five-point scale would reduce the amount of left-to-right scrolling that the respondent would have to undertake when completing the online survey. Research has shown that undue scrolling irritates respondents and can prompt survey abandonment (Manfreda et al. 2004; Peytchev, Couper, McCabe and Crawford 2006). In addition, the results

of experiments do suggest that the responses yielded by five- and seven-point scales are comparable (Colman, Norris and Preston 1997; Dawes 2008).

The groups that respondents were asked to rate were as follows: a) the partners in this business b) the board of directors of this business, c) the management team, d) the firm's suppliers e) the employees of this firm f) our clients/customers g) other members of the trade organizations to which I belong h) other members of the professional organizations to which I belong, i) other members of the social organizations to which I belong j) other external contacts and k) the people I generally talk to about business matters. These categories were derived from the existing literature on entrepreneurial networks and resource acquisition particularly Davis and Aldrich (2000) and Reese and Aldrich (1995) but also Smith, Smits and Hoy (1992), Greve and Salaff (2003) and additional research by Howard E. Aldrich and colleagues (Aldrich et al. 1989; Renzulli et al. 2000; Renzulli and Aldrich 2005). In order to ascertain levels of discrimination or preferential treatment, respondents were asked "Thinking just about your commercial relationships, have you or your business ever experienced discrimination or preferential treatment because of your **gender**? Please indicate below all sources of this treatment". The possible sources were: customers/clients, staff, colleagues, suppliers, financial institutions, other. These sources were selected from the qualitative research on discrimination against nontraditional women entrepreneurs (Chesser 1998; Coyle and Flannery 2005).

The Resource Generator

The Resource Generator formed the core part of the survey and was derived from the work by Martin van der Gaag and colleagues (van der Gaag and Snijders 2003; van der Gaag and Snijders 2005; van der Gaag et al. 2008) Here, respondents were asked about specific resources they were able to access through their social networks. For example, the first question was "Can you think of anyone who has provided assistance in accounting or financial matters?". The resources listed were drawn from previous work on network

resources by Howard E. Aldrich and colleague's (Aldrich and Zimmer 1986; Dubini and Aldrich 1991; Reese 1992; Aldrich et al. 1997; Davis and Aldrich 2000; Renzulli et al. 2000; Aldrich et al. 2002) and included a mix of affective resources (e.g. moral support, mentorship), instrumental resources (e.g. professional services, finance), brokerage resources (e.g. help securing clients or making other contacts) and advisory resources (e.g. advice on product or service development). After answering these questions, respondents were asked whether they had received this resource from a man, a woman, whether they were unsuccessful in their search, or whether this was a resource they did not require (not applicable). They were also asked to indicate the source of the relationship from a number of choices (spouse or partner, family member, friend, employees, client or customer, supplier, accountant bank manager or other consultant, business organization member, other business owner – same industry, other business owner – different industry, or other) identified as important in the literature (Nelson 1987; Anna et al. 2000; Davis and Aldrich 2000; Renzulli and Aldrich 2005; Miller et al. 2006/7) and 'how well' they knew the provider of the resource on a 5-point Likert scale. This latter question was the only indicator of tie strength used in the questionnaire, following the recommendations of Marsden and Campbell (1984). The authors compared various measures of tie strength in a study of best friends and found that 'closeness' was probably the most accurate measure. Measures of relationship duration exaggerated the strength of ties with close kin and measures of frequency of interaction tended to overstate the strength of ties with colleagues, neighbours and other random connections (such as daily encounters with milk or postal workers).

Respondents were contacted three times by email with a request to complete the survey by clicking a hyperlink. The email can be found in appendix 1. The first email contained no subject line, following Porter and Whitcomb's (2005) suggestion that this generate a curiosity in the reader that increases click-and-read rates. Based on the accepted wisdom that response rates are positively associated with respondent's interest in the topic of the survey (Suchman and

McCandless 1940; Baur 1947), the subject line of the follow-up emails asked "why are there so few men/women owned businesses in childcare/sound engineering/construction/publishing?" depending on the sector in which the recipient was based. The survey was designed and posted on the MMU page of Bristol Online Surveys system, provided by the Institute for Learning and Technology at Bristol University. The design fell over 8 pages. The opening page provided an introduction to the survey, its purpose, and directed the respondent to contact me if they required extra information. Clicking onto the next page was considered indicative of the participant giving their informed consent. Respondents could finish the survey at a later date, encouraging them complete the questionnaire in their own time. The survey was launched from August 2009 and ran until March 2010.

5.9 Recap of objectives and hypotheses

As a reminder, this research study seeks to meet the following objectives:

1. To describe, compare and contrast the network characteristics of male and female business owners in gender typical and atypical sectors;
2. To identify whether the networks of gender congruent and incongruent business owners differ, and in what ways;
3. To identify the links between network composition and resource acquisition and the ways in which these differ for gender congruent and incongruent men and women business owners;
4. To identify whether experiences of discrimination differ according to gender congruency, and to draw links between discrimination and resource acquisition for gender congruent and incongruent men and women business owners; *and*
5. To develop a resource-based theory of entrepreneurial segregation.

In the chapter that follows, the hypotheses are tested. Table 5.5 displays the relationship between each hypothesis and research objective.

TABLE 5.5: RELATIONSHIP BETWEEN HYPOTHESES AND RESEARCH OBJECTIVES

	Hypothesis	Objective addressed
H1a	Nontraditional women owners suffer greater levels of perceived discrimination than traditional women	4
H1b	There are no differences in the levels of perceived discrimination suffered by nontraditional men owners and traditional men owners.	4
H2a	Women owners of firms in male-dominated sectors experience greater perceived discrimination from financiers than women owners of firms in female-dominated sectors.	4
H2b	There is no difference in the level of perceived discrimination from financiers experienced by men owners of firms in male-dominated sectors and men owners of firms in female-dominated sectors.	4
H2c	Women owners of firms in male-dominated sectors experience greater difficulty in obtaining external finance than women owners of firms in female-dominated sectors.	4 and 5
H2d	There is no difference in men owners' of firms in male-dominated sectors and men owners' of firms in female-dominated sectors ability to obtain external finance.	4 and 5
H3a	Aggregated across sectors, men owners have networks that are significantly more homogeneous than those of women owners.	1
H3b	Women owners in female-dominated industries have networks that are significantly more homogeneous, compared to women owners in male-dominated industries	2
H3c	There is no difference in the homogeneity of the networks of men owners in female-dominated industries, integrated and male-dominated industries.	2
H4a	Nontraditional women owners that have female-dominated social networks acquire a lower volume of resources than nontraditional women owners with mixed-sex networks.	3
H5	Nontraditional women owners that have male-dominated social networks experience greater perceived discrimination than nontraditional women owners with female-dominated or mixed-sex networks	4
H6	Women in male-dominated industries obtain a greater proportion of resources from strong ties than women in female dominated industries.	2
H7a	In the aggregate, women business owners obtain a greater proportion of resources from kin than men business owners	1
H7b	Women owners in male-dominated sectors obtain a greater proportion of resources from kin than women business owners in female-dominated business sectors.	2
H8a	Nontraditional women that have a male-typed or neutral	2

	education have networks that are more heterogeneous than nontraditional women that have a female-typed education.	
H8b	Nontraditional women that have previous experience in the industry have networks that are more heterogeneous than nontraditional women that have no experience in the industry	2
H8c	Nontraditional women that have previous experience in the industry perceive less discrimination than nontraditional women with less relevant experience	4
H8d	Nontraditional women that have previous experience in the industry are more successful in obtaining resources than nontraditional women with less relevant experience.	5

CHAPTER SIX: Analysis

6.1 Data cleaning and screening

This chapter presents an analysis of the data. The survey data was cleaned and entered into the statistical software package Statistical Package for the Social Sciences (SPSS) version 17. Univariate analyses were performed for all the variables in order to establish accuracy of data entry, to check for missing values and to identify outliers (Field 2009). Five multivariate outliers were detected by calculating and examining Mahalanobis distance and by screening histograms. These outlying cases showed extreme values on the scale measuring experience of gender discrimination and were deleted from the dataset.

Four of the variable items had unacceptable numbers of missing values. The first was "how old is your youngest child"? Although 40.1 percent of respondents (n = 97) indicated that they were parents, just 17.6 percent of those (n = 17) indicated the age of their youngest child. It is possible that this question was poorly placed in the survey (see appendix 3). This variable was not used in any further analyses. The other variables that yielded high levels of missing data all related to performance. Apparently, respondents were reluctant to provide data on their personal income, or their firms' sales and profits levels. These variables were therefore excluded from further analysis. The pattern of missing values for the other variables was random. The sample was of a sufficient size that cases with missing values were excluded listwise. Additionally, normality and data distribution checks were performed and variables recoded as necessary.

6.2 Measures and procedure

Measures

It was necessary to compute some variables for use in tests and regression analyses. These are described fully below. All variables used in the analyses are summarized in table 6.1.

Resources. This variable measures the proportion of resources a business owner successfully leveraged from his or her collectivity of contacts, and thereby gauges the extent to which owners were successful in their attempts to secure resources from network members. Respondents were asked whether they had attempted to secure, and had managed to secure 21 different financial, informational, emotional and tangible resources (see appendix 2). If respondents had obtained a resource, this was coded 1; unattained resources were coded 0. Resources that were not obtained because respondents did not require them (for example, where respondents had no employees and therefore did not require assistance in finding staff, or where childless owners did not require help with childcare) are treated as not sought, coded -1 and specified as missing data. The measure of total resources acquired is expressed as a percentage and was calculated in the following way:

$$\frac{\textit{Total resources obtained}}{\textit{Total resources sought}} \text{ x } 100$$

Homogeneity. The variable *homogeneity* measures the degree to which owners' business networks are comprised of individuals of the same biological sex. Respondents indicated on an attribution scale of 'all' to 'none' the approximate proportions of 11 types of contact that are the same sex (see appendix 2 for details). Attribution scales most closely correspond with the definition of interval data originally given by Harvard psychologist S.S. Stevens in 1946 (the most common taxonomy of measurement scales used in statistical analysis). Stevens (1946) defined interval scale variables as any isotonic, rank ordered data with a true zero point that is invariant under monotonic transformations. Nominal data, on the other hand, is defined as

data in which “the numerals are used only as labels or type numbers, and words or letters would serve as well…the purpose is just as well served when any two designating numerals are interchanged”. According to Stevens’ classification (as well as many alternative versions such as those offered by Abelson and Tukey (1963) and Mosteller and Tukey (1977)), data that is named or labeled, rather than quantified, may be treated as interval in nature as long as the categories are explicitly ordered and a true zero point is evident (Velleman and Wilkinson 1993). Furthermore, monotonic transformations of such data are possible as long as the order is preserved. The full range of statistical procedures appropriate for the measurement scale can then be applied to the transformed data. It is conventional in social network analysis for network diversity or homogeneity to be expressed as a proportion to facilitate statistical analysis (Campbell, Marsden and Hurlbert 1986: 115). For ease of interpretation and, in accordance with this convention and Stevens’ (1946) classification, the homogeneity variables were transformed to an interval scale, and coded so that if ‘none’ of a group was the same sex as the respondent, this was coded 0. If ‘all’ of a group of ties was the same sex, this was coded 100. ‘Some’ was coded 25, ‘about half’ coded 50 and ‘most’ coded 75, so that a network composition score could theoretically range from 0 to 100 (see Requena 2003; Rhodes 2012 for similar procedures)

This data was summed and averaged to create a composite variable measuring homogeneity (Cronbach’s $\partial = 0.91$). A network score of 0 equals a perfectly heterogeneous network whereas a network score of 100 indicates a perfectly homogeneous network. For the regression analysis, this variable was recoded into a nominal variable with three categories, *homogeneity_n*. Those with a network score of 33 or less were coded as having *heterogenous* networks, respondents with a network score of 66 or more were coded as having homogeneous networks, and those with a network score between 34 and 65 were coded as having a ‘mixed’ network.

Strong providers. This is a measure of the proportion of resources that respondents received from strong ties. Respondents indicated how well they knew resource providers on a Likert scale (1= “Do not know at all”, 5=”Know very well” Those who were assigned 4 or 5 are treated as strong ties. The proportion of resources provided by strong ties is expressed as a percentage and calculated simply as below:

$$\frac{\textit{Total resources provided by strong ties}}{\textit{Total resources obtained}} \text{ x } 100$$

The proportion of resources received from weak ties is the inverse of this measure. So, if a respondent obtained 20 percent of resources from strong ties, it follows that 80 percent of resources were obtained from weak ties.

Male providers. This is a measure of the proportion of resources that respondents received from male ties. Respondents indicated the sex of each resource provider. The proportion of resources provided by men is expressed as a percentage and calculated simply as below:

$$\frac{\textit{Total resources provided by male ties}}{\textit{Total resources obtained}} \text{ x } 100$$

The proportion of resources received from women is the inverse of this measure. So, if a respondent obtained 20 percent of resources from men, it follows that 80 percent of resources are obtained from women.

Kin providers. This is a measure of the proportion of resources that were provided by kin. Respondents indicated the relationship between themselves and each resource provider (see appendix 2). Resource providers that were marked as ‘spouse/partner’ or ‘family’ were coded as kin, and the proportion of resources provided by kin members was calculated as follows:

$$\frac{\textit{Total resources provided by kin}}{\textit{Total resources obtained}} \times 100$$

Discrimination. Stereotyping is unobservable, so discrimination is used as a proxy measure. Respondents reported whether each of six sources (customers/clients, staff, colleagues, suppliers, financial institutions, other) had ever discriminated against them because of their gender. A composite measure of discrimination was obtained by counting, for each respondent, the total number of reported sources of discrimination, out of a possible 6. So an individual who had experienced discrimination from each of the six sources was assigned a score of 6; a respondent who reported no discrimination was scored 0.

Positive discrimination. Respondents reported whether each of six sources (customers/clients, staff, colleagues, suppliers, financial institutions, other) had ever treated them preferentially because of their sex. A composite measure of positive discrimination was obtained by counting, for each respondent, the total number of reported sources of positive discrimination, out of a possible 6. So, an individual who had experienced positive discrimination from each of the six sources was assigned a score of 6; a respondent who reported no positive discrimination was scored 0.

Relevant human capital. Respondents were asked to indicate whether they had experience in the same industry as their venture prior to starting their firm. Respondents could select as many of the following types of experience as they wished: experience in the same industry as an employee, a business owner, a hobby, as a student, unpaid work experience in the same industry and an 'other' category. Having experience is coded 1; having no experience is coded 0. Responses were summed to create a measure of human capital which had a theoretical range of 0 to 6. Respondents with no relevant experience received a score of 0; respondents with experience in all areas were assigned a score of 6.

TABLE 6.1. MEASURES USED IN MULTIVARIATE ANALYSES

Variable	Description	Coding
Main variables		
Sex	Sex of owner and respondent	0=male 1=female
Sector	Sector of firm	1=female-dominated 2=sex integrated 3=male-dominated
Resources	Proportion of resources a business owner successfully sought and secured from her collectivity of contacts.	Theoretical range of 0-100 where 0= completely unsuccessful in obtaining resources, and 100= completely successful in obtaining resources
Homogeneity	Observed proportion of network that is same sex as owner	Theoretical range of 0-100 where 0=completely heterogeneous network 100=completely homogeneous network
Homogeneity_n	Nominal variables representing homogeneity of network	1=Heterogeneous networking strategy 2=Mixed networking strategy 3=Homogeneous networking strategy
Discrimination	Total number of reported sources of discrimination	Theoretical range of 0-6
Positive discrimination	Total number of reported sources of positive discrimination	Theoretical range of 0-6
Strong providers	Proportion of resources obtained from strong ties	Theoretical range of 0-100
Male providers	Proportion of resources obtained from male ties	Theoretical range of 0-100
Kin providers	Proportion of resources obtained from kin ties	Theoretical range of 0-100
Human capital variables		
Human capital	Total number of sources of relevant experience respondent obtained prior to owning the firm	Theoretical range of 0-6
Education	What is your highest level of education?	0=No degree 1=college degree or higher
Experience	Have you ever run any other business?	1=Yes 2=No
Major*	For respondents with college education, sex-type of major	1=Male-typed 2=Neutral 3=Female-typed
Controls		
Status	Legal status of firm	1=Corporation

		2=Others
Business Stage	At what stage would you say this business is at?	1=Young or new 2=Well-established
Marital status	What is your marital status	1='married' or 'partnered' 2=others
Ethnicity	What is your ethnicity	1=White/Caucasian 2=others
Sexual Orientation	What is your sexual orientation?	1= Heterosexual 2= others
Respondent age	Age of respondent in years	
Firm age	Age of business in months	
Employees	How many employees do you have?	Observed range of 0-250
Hours	Approximately how many hours do you spend working in *this* business?	Observed range of 10-70

*Note: Sex type of major was coded in accordance with data on the sex composition of degree subjects provided by the U.S. Department of Education, National Center for Education Statistics, 2008-09 Integrated Postsecondary Education Data System (see appendix 4).

Procedure

Before proceeding with the main analysis, univariate analyses were performed on the main sociodemographic and firm characteristic variables in order to identify patterns. Non-parametric tests were used throughout. Parametric tests require that the data meet three assumptions: normality, equal variances and independence. In Kolmogorov-Smirnov (K-S) tests many of the measures were significantly non-normal. In large samples, the K-S test is known to flag minor deviations from normality as statistically significant (D'Agostino and Stephens 1986). But, because this analysis involved comparing small subsamples, it was important to assess the distribution in each group. I performed histograms and Q-Q plots to check visually for normality and was confident that the data was non-normal. Thus it was necessary to use nonparametric tests of difference.

Loglinear analysis and Pearson chi-square was used to test for differences in nominal characteristics among the subsamples. For the network, resource providers and discrimination measures, the data was analysed in two phases. The first phase analysed within-sector sex differences (i.e. men and women in the female-dominated, sex-integrated and male-dominated sectors were compared) using Mann-Whitney *U* tests, a common nonparametric tool for

comparing means when there are two groups (Field 2009). The second phase used Kruskal-Wallis tests to identify within-sex (i.e. women owners in female-dominated, sex-integrated and male-dominated sectors were compared with each other, then men owners in female-dominated, sex-integrated and male-dominated sectors were compared with each other). Kruskal-Wallis is appropriate when comparing means among three or more groups (Field 2009). Post-hoc Mann-Whitney *U* tests followed if a significant effect was detected. To adjust for multiple testing and reduce the probability of Type I error, the Bonferroni correction was applied. All tests were two-sided and three *p* values were used as criterion for rejecting the null hypothesis: $p<.05$, $p<.01$ and $p<.001$, except when a Bonferroni correction was applied. Figures are given to two decimal places throughout, except for significance values, which are given to three decimal places.

Analyses of Covariance (ANCOVA) using the General Linear Model method were used to predict discrimination. ANCOVA can be thought of as a combination of regression analysis and analysis of variance (ANOVA) that tests whether certain factors affect the dependent variable after removing the variance for which predictors, or *covariates* account (Rutherford 2011). ANCOVA has an advantage over other statistical techniques; the inclusion of covariates can increase statistical power because these account for some of the variability, and predictor variables need not be measured in the same way. ANCOVA requires that a number of assumptions are met. There should be a linear relationship between the predictor and outcome variables, residual errors should be independent of one another, residual error variance must be constant for all cases, covariates are presumed to be measured without error and the outcome variables must be normally distributed (Rutherford 2011).

Levene's test is used to check for homogeneity of variances. A significant Levene's statistic suggests that the assumption of equal variances has been violated. However, when samples are large, small differences in group variances are known to produce significant Levene's results (Field 2009). One

way to double check is to compare the variance ratio (F_{Max}) (the ratio of variances between the group with the largest and the group with the smallest variance) with a list of critical values published by Hartley (Pearson and Hartley 1954). Where a significant Levene's statistic was observed, I performed this double check, and did not encounter a situation where the differences in variances were cause for concern.

To assist interpretability of results, separate analyses were run for owners in the female-dominated, male-dominated and integrated industries. The ANCOVAs tested the main effects of gender and other covariates on discrimination, as well as a series of interactions between gender and the covariates. To eliminate non-essential correlation between the interaction terms and their component variables, those predictors used in the interactions were centered (Aiken and West 1991). I report the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), R^2, and adjusted R^2. The regression coefficients (β) give a measure of the contribution of each variable to the model. They signify the expected change in the dependent variable for each unit increase in the independent variable, after the independent variables are standardized. The beta is a standardized regression coefficient, rather than a correlation coefficient. But, it's meaning is similar to a partial correlation in that the variance than overlaps with the other components of the equation that also contribute to the outcome are controlled. Significant effects were interpreted by examining beta values and estimated marginal means.

Discriminant function analysis was performed to test the hypotheses relating to access to financial resources. Discriminant function analysis is useful when a researcher wishes to identify the variables that are important for distinguishing between two or more mutually exclusive groups (Spicer 2005). In this analysis, I was interested in four groups of respondents: those that successfully obtained a loan or other form of investment from a male network tie, those that secured this resource from a female network tie, those that

were unsuccessful and those that did not require this resource. Since I was interested in establishing the relative contribution of each variable to the prediction of group membership, I used a stepwise analysis which allows predictors to enter the equation one by one. SPSS uses statistical criteria to determine the optimal order in which the variables enter the equation, and significance is assessed at each step.

Blocked hierarchical multiple regression was used to test the hypotheses relating to resource acquisition. For multiple regression analyses to be conducted, it is important that there is no evidence of multicollinearity (Field 2009). Intercorrelation matrices were produced and collinearity diagnostics were performed. The intercorrelation matrices were examined for correlation coefficients >.80 and variance inflation factor (VIF) statistics were examined for numbers of 10 or more – two accepted indicators of multicollinearity. The variables are similar to those used in the ANCOVAs, with some additions. The network variable was recoded into three dummy variables. 'Heterophily' represented respondents with heterophilious networks, that is, those with a network score of 33 or less. Those with a network score of 66 or more were coded 'Homophily'. Those with a network score between 34 and 65 are coded as having a 'mixed' network. Variables were forced into the model in five blocks. The control variables were entered first. In the second step, the dummy variables representing network heterophily were entered in order to assess the total effect of network sex composition on ability to mobilize networks (for the female sample, the dummies homophily and heterophily are used, for the male sample, homophily and mixed as used). In model three, resource provider variables (proportion of resources received from male ties, proportion of resources from strong ties, proportion of resources from kin and heterogeneity of resource providers) were entered. In the fourth step, the variables representing voluntary organization membership were entered. In the final step, the discrimination composite variable was entered.

6.3 Sample and response rate

It is difficult to determine response rates with any real accuracy when using web-or email-based surveys because the true number of respondents reached is unknown. Emails can be ignored, deleted or may 'bounce-back' to the sender without ever reaching the recipient (Fan and Yan 2010; Manzo and Burke 2012). The American Association for Public Opinion Research thus recommends reporting the *maximum response rate*; a figure determined by dividing the number of surveys returned by the number that were sent out and not returned as undeliverable (American Association for Public Opinion Research (AAPOR) 2000). Of the 700 emails, 49 (7 percent) bounced back and 5 respondents (0.71 percent) actively refused to participate. 267 surveys were completed, equivalent to a maximum response rate of 38.1 percent. However, 3 respondents submitted completely blank responses, and a further 9 contained outliers or respondents did not complete sufficient information to allow for meaningful analyses. Overall, a total of 255 completed and useable questionnaires were submitted. The response rate might on first appearances seem low, but business owners are a notoriously apathetic population when it comes to participating in academic research (Curran and Blackburn 2000). The rate achieved here compares favourably with those of previous online social capital surveys of small firms (e.g. Roomi 2007 - 6.5%) and even those using mail methods (e.g. Borooah, Collins et al. 1997 - 25.9%; Ozgen and Baron 2007 - 22.4%), which are believed by some to elicit higher response rates.

Nonetheless, low response rates can introduce bias into analysis (Baur 1947) so here, I attempt to identify nonresponse bias using early-late respondent comparisons as a proxy for comparing data between respondents and nonrespondents (Armstrong and Overton 1977). Because extra appeals are required to motivate them to participate in the survey, researchers have suggested that late respondents are demographically similar to nonrespondents (Pearl and Fairley 1985; Borg and Tuten 2003). If there are no systematic differences between early and late respondents, there is no

evidence to suggest there is bias caused by nonresponse. I stratified the respondents as 'early' or 'late' based on the number of reminders required before response. Early respondents *(n*=71, 29.3%) responded after the first email. Late respondents *(n*=171, 70.7%) responded after the second or third reminder. I performed chi-square tests on three sociodemographic variables and three variables representing firm characteristics to check for differences between the two groups. Chi-square tests are appropriate when comparing groups identified measured by nominal or categorical data (Field 2009). If the observed differences are statistically significant, one rejects the null hypothesis that groups are the same. The results of this preliminary analysis, which are summarized in table 6.2, revealed no significant differences between the early and late respondents. In statistical terms, the two groups resemble each other on the basis of these variables. Thus, there is little evidence of nonresponse bias in this sample.

TABLE 6.2 COMPARING EARLY AND LATE RESPONDENTS

	Chi-square	***df***	***p***
Sex of owner	1.62	1	.204
Ethnicity	4.35	7	.738
Highest level of education	2.10	4	.717
Marital status	3.96	4	.411
Parental status	0.58	1	.448
Presence of employees	0.60	1	.439
Legal status of firm	3.04	4	.551

Table 6.3 displays survey respondents by sex of owner and business sector. Overall, 121 firms (47.5%) were woman-owned, 121 (47.5%) were man-owned and 13 (5.1%) firms were owned equally by men and women. Because of their small numbers, equally woman/man owned firms are dropped from further analysis.

TABLE 6.3 SURVEY RESPONDENTS

	Full sample	Women-owned firms	Men-owned firms	Equally women/ men owned firms
Childcare	64 (25.1%)	31 (25.6%)	29 (24.0%)	4 (30.8%)
Publishing	68 (26.7%)	34 (28.1%)	29 (24.0%)	5 (38.5%)
Construction	68 (26.7%)	33 (27.3%)	33 (27.3%)	2 (15.4%)
Sound	55 (21.6%)	23 (19.0%)	30 (24.8%)	2 (15.4%)
Total	**255**	**121 (47.5 %)**	**121 (47.5 %)**	**139 (5.1%)**

Notes: percentages in parentheses

6.4 Descriptive characteristics

Variable means and frequencies for owner characteristics are reported in table 6.4, and those for business characteristics are given in table 6.5. The columns are shaded to highlight sample divisions. Thus, in tables 6.4 and 6.5, woman-owned firms are presented next to man-owned firms, and are shaded pink female-dominated, male-dominated and integrated firms are presented beside each other, and are shaded blue and traditional firms are compared with nontraditional firms, and are shaded yellow. For brevity, acronyms are used in the table headers. The following acronyms are used in the tables that follow: WOB (Women-owned businesses), MOB (Men-owned businesses), FDOM (businesses in the female-dominated industry), MDOM (businesses in the male-dominated industries), INT (businesses in the integrated industry), TRAD (businesses that are traditional for the owners' sex), and NTRAD (businesses that are not traditional for the owners' sex).

There are some interesting patterns with regard to owner characteristics. Overall, the mean age of respondents is 45, with the oldest respondent aged 65 and the youngest aged 29. Women owners are slightly younger than men owners (44 vs. 46); owners of firms based in sex atypical industries are slightly younger than those based in gender typical industries (43 vs. 46). This

is unsurprising, since the self-employment of men and women in nontraditional sectors is a relatively new phenomenon.

Sex differences in the human capital variables are observed. Overall, 63 percent of the sample *(n*=152) possess a Bachelor's or Graduate degree, but a smaller proportion of men owners (52.5 percent, *n*=64) than women owners (73.5 percent, *n*=89) have achieved this level of education, $\chi^2(1)=11.07$, $p<.001$. There are large differences between women and men in traditional sectors in terms of the proportion holding a degree (83.3 percent [*n*=26] vs. 39.7 percent [*n*=25], $\chi^2(1)=15.58$, $p<.001$) but in the nontraditional sectors educational levels are statistically equal (64.3 percent of women [*n*=55], vs. 69.2 percent of men [*n*=23],, $\chi^2(1)=0.19$, $p=.660$).

TABLE 6.4 OWNER CHARACTERISTICS

	All (*n*=242)	WOB (*n*=121)	MOB (*n*=121)	FDOM (*n*=60)	MDOM (*n*=119)	INT (*n*=63)	TRAD (*n*=94)	*TRAD female owned (n=31)*	*TRAD male-owned (n=63)*	NTRAD (*n*=85)	*NTRAD female-owned (n=56)*	*NTRAD male-owned (n=29)*
Mean age (years)	44.8	43.5	46.2	43.1	45.0	46.1	45.8	43.0	47.1	42.9	42.8	43.2
Ethnicity (%):												
Asian/Asian-American	10.3 (*n*=25)	13.2 (*n*=16)	7.4 (*n*=9)	8.3 (*n*=5)	12.6 (*n*=15)	7.9 (*n*=5)	5.3 (*n*=5)	6.5 (*n*=2)	4.8 (*n*=3)	17.6 (*n*=15)	21.4 (*n*=48)	10.3 (*n*=3)
Middle Eastern	6.2 (*n*=15)	5.8 (*n*=7)	6.6 (*n*=8)	10 (*n*=6)	3.4 (*n*=40	7.9 (*n*=5)	8.5 (*n*=8)	12.9 (*n*=4)	6.3 (*n*=4)	2.4 (*n*=2)	0 (*n*=0)	6.9 (*n*=2)
Black/African-American	10.3 (*n*=25)	11.6 (*n*=14)	9.1 (*n*=11)	11.7 (*n*=7)	6.7 (*n*=7)	15.9 (*n*=10)	4.3 (*n*=4)	6.5 (*n*=2)	3.2 (*n*=2)	12.9 (*n*=11)	10.7 (*n*=9)	17.2 (*n*=5)
White/ Caucasian	61.6 (*n*=149)	59.5 (*n*=72)	63.6 (*n*=77)	65.0 (*n*=39)	63 (*n*=75)	55.6 (*n*=35)	71.3 (*n*=67)	71.0 (*n*=22)	71.4 (*n*=45)	55.3 (*n*=47)	53.6 (*n*=46)	58.6 (*n*=17)
Hispanic/Latino	5 (*n*=12)	5 (*n*=6)	5 (*n*=6)	5 (*n*=3)	3.4 (*n*=4)	7.9 (*n*=5)	3.2 (*n*=3)	3.2 (*n*=1)	3.2 (*n*=2)	4.7 (*n*=4)	3.6 (*n*=3)	6.9 (*n*=2)
Other ethnicities***	6.6 (*n*=16)	9.9 (*n*=12)	8.3 (*n*=10)	0 (*n*=0)	4.1 (*n*=5)	4.8 (*n*=3)	7.4 (*n*=7)	0 (*n*=0)	11.1 (*n*=7)	7.1 (*n*=6)	10.7 (*n*=9)	0 (*n*=0)
% Run a firm before	58.4 (*n*=141)	50.4 (*n*=61)	68.6 (*n*=83)	62.5 (*n*=37)	65.0 (*n*=77)	42.6 (*n*=27)	62.8 (*n*=59)	54.8 (*n*=17)	66.7 (*n*=42)	67.1 (*n*=57)	64.3 (*n*=55)	72.4 (*n*=21)
% with degree or above	62.9 (*n*=152)	73.5 (*n*=89)	52.5 (*n*=64)	76.8 (*n*=46)	51.3 (*n*=61)	73.3 (*n*=46)	53.8 (*n*=51)	83.3 (*n*=26)	39.7 (*n*=25)	65.9 (*n*=56)	64.3 (*n*=55)	69.2 (*n*=23)
Sexual Orientation (%)												
Heterosexual	75.3 (*n*=182)	76.9 (*n*=93)	77.7 (*n*=89)	63.3 (*n*=38)	84.3 (*n*=100)	77.8 (*n*=49)	88.3 (*n*=83)	77.4 (*n*=24)	93.7 (*n*=59)	64.2 (*n*=55)	73.1 (*n*=62)	48.3 (*n*=14)
Gay or lesbian	14.9 (*n*=36)	16.2 (*n*=20)	13.2 (*n*=16)	26.7 (*n*=17)	10.4 (*n*=12)	11.1 (*n*=7)	7.4 (*n*=7)	16.1 (*n*=5)	3.2 (*n*=2)	25.9 (*n*=22)	19.2 (*n*=16)	37.9 (*n*=11)

Others**	9.8 (*n*=24)	6.9 (*n*=10)	9.1 (*n*=14)	10 (*n*=6)	5.3 (*n*=6)	11.1 (*n*=7)	4.3 (*n*=4)	6.5 (*n*=2)	0 (*n*=0)	9.9 (*n*=8)	3.8 (*n*=3)	6.9 (*n*=2)
Mean hours of work	49.6	47.0	52.2	46.4	52.5	47.3	52.8	45.1	56.4	47.7	47.7	47.6
% Married or cohabiting	68.8 (*n*=166)	63.5 (*n*=76)	74.1 (*n*=90)	74.1 (*n*=44)	64.1 (*n*=76)	73.3 (*n*=46)	73.0 (*n*=69)	78.6 (*n*=24)	70.5 (*n*=44)	61.0 (*n*=52)	57.1 (*n*=49)	69.2 (*n*=20)
% with children*	40.1 (*n*=97)	40.9 (*n*=49)	39.3 (*n*=48)	61.1 (*n*=37)	30.4 (*n*=36)	39.7 (*n*=25)	41.4 (*n*=39)	60.7 (*n*=19)	32.2 (*n*=20)	39 (*n*=33)	28.6 (*n*=24)	61.5 (*n*=18)

Notes: *under 18 and living at home. **includes bisexual and 'other' categories but excludes refusals and missing. *** includes Indian, Native American, 'Other' category

TABLE 6.5 FIRM CHARACTERISTICS

	All (*n*=242)	**WOB (*n*=121)**	**MOB (*n*=121)**	**FDOM (*n*=60)**	**MDOM (*n*=119)**	**INT (*n*=63)**	**TRAD (*n*=94)**	***TRAD female owned (n=31)***	***TRAD male-owned (n=63)***	**NTRAD (*n*=85)**	***NTRAD female-owned (n=56)***	***NTRAD male-owned (n=29)***
Legal Status (%)												
Sole Trader	6.6 (*n*=16)	11.6 (*n*=14)	1.7 (*n*=2)	15.0 (*n*=9)	5.0 (*n*=6)	1.6 (*n*=1)	7.4 (*n*=7)	22.6 (*n*=7)	0 (*n*=0)	9.4 (*n*=8)	10.7 (*n*=6)	6.9 (*n*=2)
Partnership	4.5 (*n*=11)	1.7 (*n*=2)	7.4 (*n*=9)	0 (*n*=0)	5.9 (*n*=7)	6.3 (*n*=4)	5.3 (*n*=5)	0 (*n*=0)	7.9 (*n*=5)	2.4 (*n*=2)	3.6 (*n*=8)	0 (*n*=0)
LLC	21.9 (*n*=53)	18.2 (*n*=22)	25.6 (*n*=31)	30.0 (*n*=18)	18.5 (*n*=22)	20.6 (*n*=13)	24.5 (*n*=23)	22.6 (*n*=7)	25.4 (*n*=16)	20 (*n*=17)	10.7 (*n*=6)	37.9 (*n*=11)
Corp	66.1 (*n*=160)	68.6 (*n*=83)	63.6 (*n*=77)	51.7 (*n*=31)	70.6 (*n*=84)	71.4 (*n*=45)	62.8 (*n*=59)	54.8 (*n*=17)	66.7 (*n*=42)	65.9 (*n*=56)	75.0 (*n*=42)	48.3 (*n*=14)
Other	0.8 (*n*=2)	0 (*n*=0)	1.7 (*n*=2)	3.3 (*n*=2)	0 (*n*=0)	0 (*n*=0)	0 (*n*=0)	0 (*n*=0)	0 (*n*=0)	2.4 (*n*=2)	0 (*n*=0)	6.9 (*n*=2)
Stage in Life Cycle (%)												

New Start-Up	0.8 (*n*=2)	1.7 (*n*=2)	0 (*n*=0)	0 (*n*=0)	1.7 (*n*=2)	0 (*n*=0)	0 (*n*=0)	0 (*n*=0)	0 (*n*=0)	2.4 (*n*=2)	3.6 (*n*=8)	0 (*n*=0)
Young	17.4 (*n*=42)	24.8 (*n*=30)	9.9 (*n*=12)	16.7 (*n*=10)	16.8 (*n*=20)	19.0 (*n*=12)	8.5 (*n*=8)	19.4 (*n*=6)	3.2 (*n*=2)	25.9 (*n*=22)	32.1 (*n*=18)	13.8 (*n*=4)
Well established	81.8 (*n*=198)	73.6 (*n*=90)	90.1 (*n*=109)	83.3 (*n*=50)	81.5 (*n*=97)	81.0 (*n*=51)	91.5 (*n*=86)	80.6 (*n*=25)	96.8 (*n*=61)	71.8 (*n*=61)	64.3 (*n*=36)	86.2 (*n*=25)
Ownership (%)												
Set up Firm	75.2 (*n*=182)	65.3 (*n*=79)	85.1 (*n*=103)	81.7 (*n*=49)	68.1 (*n*=81)	82.5 (*n*=52)	75.5 (*n*=71)	71.0 (*n*=22)	77.8 (*n*=49)	69.4 (*n*=59)	57.1 (*n*=32)	93.1 (*n*=27)
Acquired Firm	24.8 (*n*=60)	34.7 (*n*=42)	14.9 (*n*=17)	18.3 (*n*=11)	31.9 (*n*=38)	17.5 (*n*=11)	24.5 (*n*=23)	29.0 (*n*=9)	22.2 (*n*=14)	30.6 (*n*=26)	42.9 (*n*=24)	6.9 (*n*=2)
Growth expectations (%)												
Expand	50 (*n*=121)	44.6 (*n*=54)	55.4 (*n*=67)	38.3 (*n*=23)	55.5 (*n*=66)	50.8 (*n*=32)	51.1 (*n*=48)	32.3 (*n*=10)	60.3 (*n*=38)	48.2 (*n*=41)	50.0 (*n*=28)	44.8 (*n*=13)
Stay the same	44.2 (*n*=107)	50.4 (*n*=61)	38.0 (*n*=46)	55.0 (*n*=33)	41.2 (*n*=49)	39.7 (*n*=25)	46.8 (*n*=44)	67.7 (*n*=21)	36.5 (*n*=23)	44.7 (*n*=38)	46.4 (*n*=26)	41.4 (*n*=12)
Get smaller	5.8 (*n*=14)	5.0 (*n*=6)	6.6 (*n*=8)	6.7 (*n*=4)	3.4 (*n*=4)	9.5 (*n*=6)	2.1 (*n*=2)	0 (*n*=0)	3.2 (*n*=2)	7.1 (*n*=6)	3.6 (*n*=8)	13.8 (*n*=4)
Has employees (%)	81.3 (*n*=197)	73.6 (*n*=89)	89.1 (*n*=108)	86.7 (*n*=52)	78.6 (*n*=94)	81.0 (*n*=51)	89.1 (*n*=84)	83.9 (*n*=26)	91.8 (*n*=58)	72.9 (*n*=62)	64.3 (*n*=36)	89.7 (*n*=26)
Mean no. of employees	21.99	12.86	30.49	12.72	31.89	12.19	30.82	7.10	40.85	19.35	17.891	17.30
Mean firm age (months)	161.21	140.46	181.61	134.11	169.24	170.41	184.24	134.81	205.43	130.21	128.54	133.45

Notes: New start-up refers to a business that has recently been initiated or trading; a young firm is a business that has been trading for some time but is not yet considered well established.

Another indicator of human capital is whether respondents had run a firm prior to running their current firm. The differences between men and women in this respect are the reverse of the education variable: across all subsamples, more men than women indicated that they had run a business prior to their current enterprise. The largest sex gap is in the integrated industry: just 23.5 percent *(n*=8) of women in this industry had run a business before, compared with 69 percent *(n*=20) of men, $\chi^2(1)=13.09$, $p<.001$. Curiously, just 42.6 percent *(n*=27) of respondents based in the sex-integrated industry had run a business before, compared to 62.5 percent *(n*=37) of owners in the female-dominated industry and 65 percent of owners in the male-dominated industries *(n*=77), $\chi^2(2)=8.10$, $p<.05$.

New York City is famously described as a 'melting pot' so it is perhaps unsurprising that the sample is diverse in terms of ethnicity. Overall, 61.6 percent *(n*=149) of the sample describe themselves as White/Caucasian, 10.3 percent *(n*=25) as Black/African-American and 10.3 percent *(n*=25) as Asian/Asian American, a demonym which, in the USA refers to people with ethnic origins in East and Southeast Asia. These patterns differ according to sex-ownership of firm and congruency of sector. Twice as many women owners (13.2 percent, n=16) than men owners (7.4 percent, n=9) are Asian. And, more than three times as many nontraditional (17.6 percent, n=15) as traditional (5.3 percent, n=5) owners are Asian. In general, it seems that a greater proportion of nontraditional than traditional owners in this sample are from ethnic minorities. For example, just 4.3 percent *(n*=4) of traditional owners describe themselves as Black/African-American compared to 12.9 *(n*=11) percent of nontraditional owners. And 71 percent *(n*=67) of traditional owners are White/Caucasian compared to 55.3 *(n*=47) percent of nontraditional owners. Overall, 44.7 percent *(n*=38) of nontraditional owners are non-White compared to 28.7 percent *(n*=27) of traditional owners.

When looking at the full sample, there are few sex differences in terms of sexual orientation, but differences appear when sector congruency is

accounted for. More traditional men (93.7 percent, n=59) than nontraditional men (48.3 percent, n=14) describe themselves as heterosexual. And, over-one quarter of owners *(n*=17) in the female-dominated industry describe their sexual orientation as gay or lesbian; in comparison, 84.3 *(n*=100) percent of owners in the male-dominated industries describe themselves as heterosexual.

The average participant in this study works 49.6 hours per week in their firm. Men work longer weekly hours than women (52.2 vs. 47), *U*=4520.00, *z*=-3.93, *p*<.001. But, in support of previous work (Sappleton 2009) mean hours of work are longest in the male-dominated sectors. Owners based in a sector that is traditional for their sex work longer hours than those who own firms in a nontraditional sector (52.8 vs. 47.7), *U*=2591.00, *z*=-3.07, *p*<.01. It is also noteworthy that, while women generally work fewer hours than men, in nontraditional sectors, men and women work virtually equal hours (47.7 hours for women, 47.6 hours for men, *U*=696.00, *z*=-0.30, *p*=.765).

For the full sample, there are few sex differences in terms of parental status, but large gaps when sector congruency and sex-domination are considered. Just 30.4 percent *(n*=36) of owners in male-dominated industries and 39.7 percent *(n*=25) of owners in the integrated sector have at least one child under 18 at home compared to 61.1 percent *(n*=37) of owners in the female-dominated industry, $\chi^2(2)=14.40$, *p*<.001. (The large difference may be an industry effect - since individuals working in childcare enjoy being around children, it seems plausible that they are also more likely to be parents). Twice as many traditional women (60.7 percent, n=19) as men are parents (32.2 percent, n=20) $\chi^2(1)= 6.36$, *p*<.05, but twice as many nontraditional men (61.5 percent, n=18) as women (28.6 percent, n=24) have children, $\chi^2(1)=8.11$, *p*<.01. Marital status varies only slightly across the groups. Fewer owners of women-owned firms (63.5 percent, n=76) than men-owned firms (74.1 per cent, n=90) are married or cohabiting, but the difference is not statistically significant, $\chi^2(1)=3.06$, *p*=.080. A smaller proportion of owners in the male-

dominated sectors (64.1 percent, n=76) than the integrated (73.3 percent, n=46) and female-dominated sectors (74.1, n=44) percent are married, but this is also insignificant, $\chi^2(2)=2.48$, $p=.290$. There is a difference between the proportions of traditional (73 percent, n=69) and nontraditional (61 percent, n=52) owners that are married or partnered but this too is insignificant $\chi^2(1)=2.82$, $p=.093$. While fewer (57.1 percent, n=49) nontraditional women than traditional women (78.6 percent, n=24) describe themselves as married or partnered, the difference is not significant, $\chi^2(2)=3.79$, $p=.151$. However, significantly fewer nontraditional (28.6 percent, n=24) than traditional women (60.7 percent, n=19) are mothers, $\chi^2(2)=8.30$, $p<.05$.

In terms of business characteristics, while most firms (66.1 percent of the sample, n=160) are organized as corporations, the female-dominated industry has sizeable proportions of sole traders (15 percent, n=9) and limited liability companies (30 percent, n=18). Respondents were asked to describe whether their firm was at planning stage, a new start-up, a young firm or a well-established business. A firm at 'planning stage' is one that is considered by the owner to be 'just a thought or an idea', a new start up is a firm that has recently been initiated, while a young firm has been operating for a while, but is not yet well-established. No business was 'at planning stage' reflecting the earlier statement that business databases tend to oversample older firms. There are sex differences in business stage, $\chi^2(2)=11.73$, $p<.01$. 81.8 percent *(n*=198) of respondents described their firm as well established, but more men than women described their firms in this way; the sex difference is evident across all subsamples. The large gap between traditional and nontraditional businesses ($\chi^2(2)=12.36$, $p<.01$) is also worth noting. Over one-quarter *(n*=24) of firms in nontraditional industries are young or new, compared to just 8.5 percent *(n*=8) of those in traditional industries. Again, this illustrates the newness of the nontraditional enterprise.

For the full sample, more men (85.1 percent, n=103) than women (65.3 percent, n=79) said they had set up rather than acquired their firms,

$\chi^2(1)=12.77$, $p<.001$. Similar sex differences are evident for traditional and nontraditional firms. More traditional (71 percent, n=22) than nontraditional women (57.1 percent, n=32) had set up their own firms, and while the difference is not statistically significant $\chi^2(1)=1.62$, $p=.203$, this observation does suggest that inheriting or purchasing an existing firm is an important way for women to enter male-dominated markets.

The size and growth characteristics are particularly interesting. In chapter one, the considerable body of work that suggests that woman-owned firms are smaller and have lower growth expectations than those owned by men was noted. In this sample, a smaller proportion of woman-owned than man-owned firms said they were expecting to expand in the next 12 months (44.6 *(n*=54) vs. 55.4 percent *(n*=67)), but the difference is insignificant, $\chi^2(2)= 3.79$, $p=.151$. Sex differences become evident when the sample is restricted to those in traditional sectors. In traditional sectors, there are significant sex differences in growth orientation, $\chi^2(2)=8.52$, $p<.05$: twice as many male-owned than female-owned traditional firms expected to expand in the next 12 months. But in the nontraditional sectors, the proportions of men-owned (44.8 percent, n=13) and women owned (50 percent, n=28) firms that expected to expand are statistically equivalent, $\chi^2(2)= 3.04$, $p=2.18$. This may be an industry effect: in general, owners of firms in the female-dominated sector are the least likely to be seeking to expand – childcare firms are known to start small and stay small (Rolfe 2005). A greater proportion of construction firms expected to expand, reflecting the current property boom in New York City. The 'growth expectations' variable was a self-reported, subjective measure and should be interpreted with care. Although the survey requested personal earnings, sales and profit figures, very few respondents provided this information.

73.6 percent *(n*=89) of woman-owned firms, compared with 89.1 percent *(n*=108) of man-owned firms employ others, $\chi^2(1)=9.49$, $p<.01$. There are also differences within subsamples. The sex gap is largest among owners of

nontraditional firms: 89.7 percent *(n=*26) of those men and 64.3 *(n=*36) percent of women have employees, $\chi^2(2)=6.23$, $p<.05$. There are also sex differences in the mean number of employees: the figure for a man-owned business is 30.49 compared to 12.86 for a woman-owned firm, *U*=5076.50, *z*=-3.70, *p*<.001. Aggregating the sexes, firms in the male-dominated sectors have the highest mean number of employees (mean=31.89) compared to the female-dominated and sex-integrated industries, which are of a comparable size on this dimension (12.72 and 12.19 respectively), *H(*2)=6.90, *p*<.05. Sex differences are large among traditional firms (women=7.10, men=40.85, *U*=568.50, *z*=-3.12, *p*<.01, but disappear among nontraditional owners (women=17.89, men=17.30, *U*=687.50, *z*=-0.55, *p*=.582).

The data on age follows broadly similar patterns. The mean age of a firm in the sample is 161.21 months (roughly 13 and a half years); firms owned by women are younger than those owned by men (140.46 vs. 181.61 months), *U*=5525.00, *z*=-2.74, *p*<.01. Men-owned traditional firms (mean = 205.43) are significantly older than women-owned traditional firms (mean= 134.81), *U*=609.50, *z*=-2.12, *p*<.05. But, men-owned nontraditional firms (mean=133.45) and women-owned nontraditional firms (mean=128.54) are statistically of equal age, *U*=723.00, *z*=-0.83, *p*=.409. Finally, nontraditional firms are younger than traditional firms (130.21 vs. 184.24 months), *U*=2585.00, *z*=3.70, *p*<.001.

6.5 Discrimination and financial resource acquisition

Perceived Discrimination: Descriptive Data

Table 6.6 reports the raw percentages of each subsample indicating that they had experienced discrimination on the basis of their gender. There are wide variations between the samples. On the whole, women reported experiencing more incidences of discrimination than men, but men that operate firms in the female-dominated sector also perceived high levels of discrimination. The highest levels of perceived discrimination were reported by women owners in the male-dominated sectors, and discrimination against nontraditional women

owners is evidently far higher than that experienced by traditional women. For instance, 71.4 percent *(n*=40) of nontraditional women owners reported experiencing discrimination from customers, compared to 16.1 percent *(n*=5) of women owners in the female-dominated sector. Women owners of firms in the integrated sector also reported high levels of discrimination.

Aggregated across the sexes, there are wide gaps between the levels of discrimination reported by traditional and nontraditional owners. For example, more than half of nontraditional owners *(n*=44) reported customer discrimination (compared to less than 10 percent *(n*=9) of traditional owners), 47.1 percent *(n*=40) reported discrimination from colleagues (compared to 3.2 percent of traditional owners, i.e. – just three respondents) and 51.8 percent *(n*=44) said that financial institutions had discriminated against them because of their gender, compared to just 5.3 *(n*=5) percent of traditional owners.

TABLE 6.6 PROPORTION REPORTING EXPERIENCE OF DISCRIMINATION, BY SOURCE, SEX OF OWNER AND GENDER-TYPE OF SECTOR

	% saying 'yes'					
	Customer	Staff	Colleagues	Suppliers	Financial Institutions	Other
Full sample (242)	31.4	9.5	18.2	15.7	24.8	11.6
	(76)	(23)	(44)	(38)	(60)	(28)
WOB (121)	54.5	9.9	24.8	28.1	46.3	8.3
	(66)	(12)	(30)	(34)	(56)	(10)
MOB (121)	8.3	9.1	11.6	3.3	3.3	14.9
	(10)	(11)	(14)	(4)	(4)	(18)
FDOM (60)	15.0	18.3	21.7	5.0	15.0	6.7
	(9)	(11)	(13)	(3)	(9)	(4)
Woman-owned (31)	16.1	0	3.2	3.2	16.1	0
	(5)	(0)	(1)	(1)	(5)	(0)
Man-owned (29)	13.8	37.9	41.4	6.9	13.8	13.8
	(4)	(11)	(12)	(2)	(4)	(4)
MDOM (119)	37.0	10.1	25.2	26.9	33.6	18.5
	(44)	(12)	(30)	(32)	(40)	(22)
Woman-owned (56)	71.4	21.4	50.0	53.6	71.4	17.9
	(40)	(12)	(28)	(30)	(40)	(10)
Man-owned (63)	6.3	0	3.2	3.2	0	19.0
	(4)	(0)	(2)	(2)	(0)	(12)
INT (63)	36.5	0	1.6	4.8	17.5	3.2
	(23)	(0)	(1)	(3)	(11)	(2)
Woman-owned (34)	61.8	0	2.9	8.8	32.4	0
	(21)	(0)	(1)	(3)	(11)	(0)
Man-owned (29)	6.9	0	0	0	0	6.9
	(2)	(0)	(0)	(0)	(0)	(2)
TRAD (94)	9.6	0	3.2	3.2	5.3	12.8
	(9)	(0)	(3)	(3)	(5)	(12)
NTRAD (85)	51.8	27.1	47.1	37.6	51.8	16.5
	(44)	(23)	(40)	(32)	(44)	(14)

Notes: *n* in parentheses

Discrimination: Sex analyses

Table 6.7 reports the ranges, means and standard deviations of the composite discrimination scores by sex of owner and sex composition of business sector. Table 6.8 reports the mean composite discrimination scores and results of Mann-Whitney tests. Recall that an individual who indicated having experienced discrimination from each of the six sources was scored 6; a respondent who reported no discrimination was scored 0. Overall, reports of discrimination are fairly low. No one owner reported experiencing discrimination from all six sources. On the whole, women *(M*=1.72, *SE*=0.15) reported experiencing greater discrimination than men *(M*=0.50, *SE*=0.08), *U*=4142.00, *z*=-6.34, *p*<.001.

There are differences in experience of discrimination according to sex-domination of sector. In the female-dominated sector, men *(M*=1.28, *SE*=0.23) experienced significantly greater discrimination than women *(M*=0.39, *SE*=0.13) *U*=271.50, *z*=-2.93, *p*<.01. In the integrated sector, women *(M*=1.06, *SE*=0.16) suffered significantly higher levels of discrimination than men *(M*=0.14, *SE*=0.07), *U*=228.50, *z*=-4.17, *p*<.001. The sex differences in the male-dominated sectors are stark. Women in the male-dominated sectors *(M*=2.86, *SE*=0.23) suffered the highest levels of discrimination compared to any other sample of women. In support of hypothesis 1a, the discrimination perceived by nontraditional women was significantly greater than that perceived by traditional woman, *U*=175.00, *z*=-6.07, *p*<.001. Interestingly, and contrary to the claims of hypothesis 1b, nontraditional men experienced significantly greater discrimination than traditional men, *U*=487.00, *z*=-4.62, *p*<.001.

TABLE 6.7 MEANS AND STANDARD DEVIATIONS OF DISCRIMINATION SCORES, BY SEX OF OWNER AND GENDER-TYPE OF SECTOR

Group (*n*)	Min	Max	Mean score	Std Dev.
All (*242*)	0	5	1.11	1.49
Female-dominated Sector (*60*)	0	3	0.82	1.08
Sex-integrated Sector (*63*)	0	3	0.63	0.87
Male-dominated Sectors (*119*)	0	5	1.51	1.79
Females (*121*)	0	5	1.72	1.70
Female-dominated Sector (*31*)	0	3	0.39	0.72
Sex-integrated Sector (*34*)	0	3	1.06	0.95
Male-dominated Sectors (*56*)	0	5	2.86	1.70
Males (*121*)	0	3	0.50	0.91
Female-dominated Sector (*29*)	0	3	1.28	1.22
Sex-integrated Sector (*29*)	0	1	0.14	0.35
Male-dominated Sectors (*63*)	0	3	0.32	0.69

Looking at those who owned gender-traditional firms, sex differences are small and insignificant, U=914.00, z=-0.67, p=.503. But, women in nontraditional industries (M=2.86, SE=0.23) experienced greater discrimination than their male counterparts (M=1.28, SE=0.227), U=383.00, z=-4.037, p<.001. In other words, there are no sex differences in experience of discrimination between men and women if they both own businesses that are gender-traditional. Both sexes suffer from discrimination if they own atypical firms, but the discrimination experienced by women outstrips that of men.

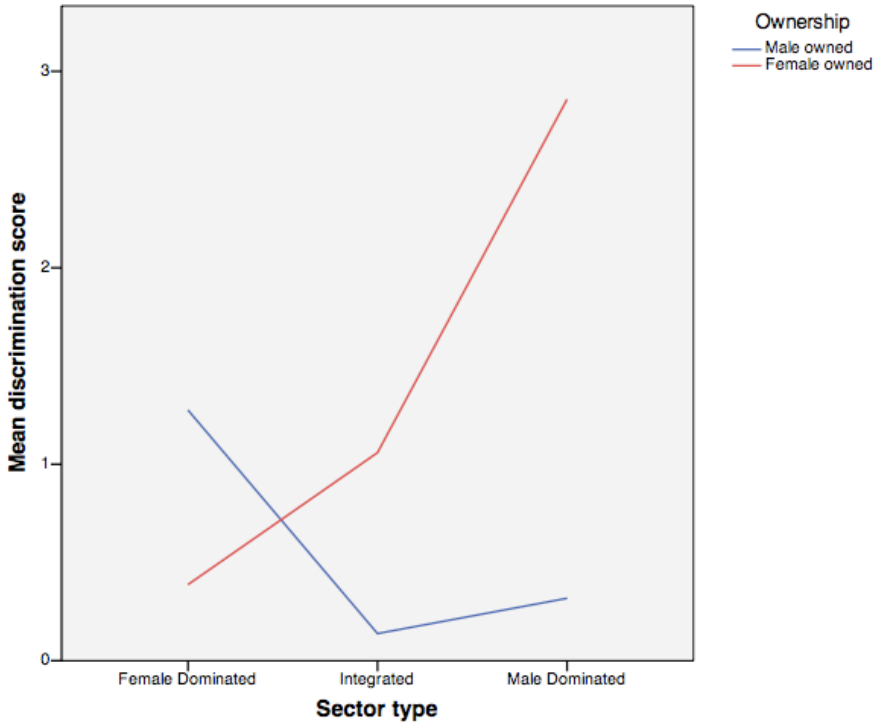
TABLE 6.8 EXPERIENCE OF DISCRIMINATION BY SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	Women	Men	*U*	*z*	*p*
All (242)	1.72	0.50	4142.00	6.34	.000***
	(0.15)	(0.08)			
Female-dominated Sector (60)	0.39	1.28	271.50	2.93	.003
	(0.13)	(0.23)			
Male-dominated Sectors (119)	2.86	0.32	349.00	-7.97	.000***
	(0.23)	(0.87)			
Integrated Sector (63)	1.06	0.14	228.50	4.17	.000***
	(0.16)	(0.07)			
Traditional Sectors (94)	0.39	0.32	914.00	-0.67	.503
	(0.13)	(0.09)			
Nontraditional Sectors (85)	2.86	1.28	383.00	-4.04	.000***
	(0.23)	(0.23)			

Note: Sex differences in means are tested. Standard errors in parentheses below means

Figure 6.2 illustrates the effect of sex of owner and sex domination of sector on experience of discrimination. For women owners, discrimination increased as the proportion of men-owned firms in the industry increased. For men owners, there was a U shaped relationship between reports of discrimination and concentration of men-owned firms in the industry. A Mann-Whitney test confirmed the differences between traditional and nontraditional owners; traditional owners *(M*=0.34, *SE*=0.07) experienced significantly less discrimination than nontraditional owners *(M*=2.32, *SE*=0.19), *U*=1328.50, *z*=-8.26, *p*<.001.

FIGURE 6.2 EXPERIENCE OF DISCRIMINATION, BY SEX OF OWNER AND SEX-DOMINATION OF SECTOR



Discrimination: Ethnicity analyses

Table 6.9 disaggregates the data relating to perceived discrimination on the basis of ethnicity. In this table, women and men are compared within ethnicity categories. The data shows that the sex differences identified earlier persist even within the White/Caucasian ethnic category (U=143.00, z=-5.41, p<.001) and the ethnic minorities category (U=696.50, z=-3.33, p<.001). Once the data is further disaggregated by sex-domination of sector, most of the sex differences in perceived discrimination outlined in table 6 persist. However, in the female dominated sector, the difference between minority ethnic women and men becomes insignificant, U=66.50, z=-1.07, p=.382. Furthermore, minority ethnic women and men in the integrated sector perceive equally small levels of discrimination, M=.14, SE=.10, U=98.00, z=0.00, p=1.000). Looking just at those who owned gender-traditional firms, there are no significant sex differences when the data is disaggregated by ethnicity. However, among those in both the White/Caucasian and ethnic minorities categories, the discrimination perceived by women significantly outstrips that perceived by men.

TABLE 6.9 EXPERIENCE OF DISCRIMINATION BY SEX, ETHNICITY AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (*n*)	Women	Men	*U*	*z*	*p*
All White/Caucasian (149)	1.86 (.19)	.60 (.12)	143.00	-5.41	.000***
All Minority Ethnicities (93)	1.51 (.26)	.34 (.10)	696.50	-3.33	.001**
Female-dominated Sector (60)	.39 (1.3)	1.28 (.23)	627.50	2.93	.003**
White/Caucasian (39)	.45 (.17)	1.76 (1.9)	289.50	3.15	.002**
Minority Ethnicities (21)	.22 (.15)	.58 (.23)	66.50	1.07	.382
Male-dominated Sectors (119)	2.86 (.23)	.32 (.09)	349.00	-7.97	.000***
White/Caucasian (75)	3.00 (.31)	.31 (.11)	103.00	-6.63	.000***
Minority Ethnicities (44)	2.69 (.34)	.33 (.16)	58.00	-4.37	.000***
Integrated Sector (63)	1.06 (0.16)	0.14 (0.07)	228.50	4.17	.000***
White/Caucasian (35)	1.70 (.15)	.13 (.09)	13.50	-4.86	.000***
Minority Ethnicities (28)	.14 (.10)	.14 (.10)	98.00	.00	1.000
Traditional Sectors (94)	0.39 (0.13)	0.32 (0.09)	914.00	-0.67	.503
White/Caucasian (67)	.45 (.17)	.31 (.11)	445.50	-.87	.384
Minority Ethnicities (27)	.22 (.15)	.33 (.16)	83.00	.14	.940
Nontraditional Sectors (85)	2.86 (0.23)	1.28 (0.23)	383.00	-4.04	.000***
White/Caucasian	3.00 (.311)	1.76 (.30)	149.00	-2.38	.017*
Minority Ethnicities (38)	2.69 (.34)	.58 (.23)	50.00	-3.40	.001

Note: Standard errors in parentheses below means

TABLE 6.10 EXPERIENCE OF DISCRIMINATION BY ETHNICITY, SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	White/ Caucasian	Minorities	*U*	*z*	*p*
Women (121)	1.86 (.19)	1.51 (.26)	1469.00	-1.60	.109
Men (121)	.60 (.12)	.34 (.10)	1544.50	-1.01	.313
Female-dominated Sector (60)	1.03 (.19)	.43 (.15)	309.50	-1.72	.085
Women (31)	.45 (.17)	.22 (.15)	87.50	-.63	.623
Men (29)	1.76 (.30)	.50 (.23)	48.50	-2.50	.016*
Male-dominated Sectors (119)	1.39 (.21)	1.73 (.27)	1825.00	1.02	.308
Women (56)	3.00 (.31)	2.69 (.34)	346.00	-.74	.462
Men (63)	.31 (.11)	.33 (.16)	409.00	.08	.933
Integrated Sector (63)	1.03 (.16)	.14 (.07)	238.00	-4.00	.000***
Women (34)	1.70 (.15)	.14 (.10)	13.00	-4.74	.000***
Men (29)	.13 (.10)	.14 (.10)	106.00	.07	1.000
Traditional Sectors (94)	.36 (.09)	.30 (.12)	878.00	-.30	.768
Nontraditional Sectors (85)	2.55 (.24)	2.03 (.29)	736.50	-1.40	.160

Note: Standard errors in parentheses below means. 'Minorities' category includes all individuals that identified with a non-white ethnicity.

Table 6.10 disaggregates the data relating to perceived discrimination on the basis of ethnicity. In this table, White/Caucasian and minorities are compared within sex categories. Looking at the data for women only, White/Caucasian (*M*=1.86, *SE*=.19) and minorities (*M*=1.86, *SE*=.26) perceived statistically equal levels of discrimination, *U*=1469.00, *z*=-1.60, *p*=.109. Similarly, there are no significant differences between the levels of discrimination perceived by White/Caucasian men (*M*=.60, *SE*=.12) and minority men (*M*=.34, *SE*=.10), *U*=1544.50, *z*=-1.01, *p*=.313. There are some interesting

observations when the data is disaggregated by sector. Although when aggregated across the sexes White/Caucasian and minorities in the female-dominated sector perceive statistically equal levels of discrimination, the data suggests that White/Caucasian men *(M*=1.76, *SE*=.30) perceive greater levels of discrimination than minority men *(M*=.50, *SE*=.23), *U*=48.50, *z*=-2.50, *p*<.016. In the integrated sector, White/Caucasians *(M*=1.03, *SE*=.16) reported greater experiences of discrimination than minorities *(M*=.14, *SE*=.07), *U*=238.00, *z*=-4.00, *p*<.000. This difference persists among women in that sector, *U*=13.00, *z*=-4.74, *p*<.000, but not among men, *U*=106.00, *z*= .07, *p*=1.000.

Discrimination: Sexual Orientation Analyses

Table 6.11 disaggregates the data relating to perceived discrimination on the basis of sexual orientation. In this table, women and men are compared within sexual orientation categories. Heterosexual women *(M*=1.47, *SE*=.17) perceive greater levels of discrimination than heterosexual men *(M*=.53, *SE*=.10), *U*=2706.00, *z*=-4.60, *p*<.001. And, LGB women *(M*=2.09, *SE*=.34) perceive greater levels of discrimination than heterosexual men *(M*=.55, *SE*=.19), *U*=106.50, *z*=-3.20, *p*<.01. In the female dominated sector, the difference between women and men identified earlier (table 6.8) persists among heterosexuals but disappears among LGB owners. In the male-dominated sectors, heterosexual women *(M*=2.47, *SE*=.29) perceive greater discrimination than heterosexual men *(M*=.32, *SE*=.09), *U*=323.00, *z*=-6.42, *p*<.001. LGB women *(M*=3.33, *SE*=.28) do perceive greater discrimination than LGB men *(M*=.00, *SE*=.00), *U*=0.00, *z*=-2.29, *p*<.05, but the very small sample suggests that this result should be interpreted with caution. Similarly, small sample caveats apply to the results for LGB owners in the integrated and traditional sectors. It has, however, interesting to note that among LGB nontraditional business owners, women *(M*=3.33, *SE*=.28) perceived greater gender discrimination than men *(M*=.85, *SE*=.25) *U*=4.00, *z*=-4.11, *p*<.001.

TABLE 6.11 EXPERIENCE OF DISCRIMINATION BY SEX, SEXUAL ORIENTATION AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	Women	Men	*U*	*z*	*p*
Heterosexual (184)	1.47 (.17)	.53 (.10)	2706.00	-4.60	.000***
LGB (43)	2.09 (.34)	.55 (.19)	106.50	-3.20	.001**
Female-dominated Sector (60)	.39 (.13)	1.28 (.23)	627.50	2.93	.003**
Heterosexual (38)	.50 (.16)	1.86 (.35)	261.00	3.03	.004**
LGB (20)	.00 (.00)	.85 (.25)	70.00	2.30	.056
Male-dominated Sectors (119)	2.86 (.23)	.32 (.09)	349.00	-7.97	.000***
Heterosexual (97)	2.47 (.29)	.34 (.09)	323.00	-6.42	.000***
LGB (14)	3.33 (.28)	.00 (.00)	.00	-2.29	.022*
Integrated Sector (63)	1.06 (.16)	.14 (.07)	228.50	-4.17	.000***
Heterosexual (49)	.93 (.19)	.19 (.09)	172.50	-2.82	.005**
LGB (9)	2.00 (.00)	.00 (.00)	.00	-2.83	.016*
Traditional Sectors (92)	.39 (.13)	.32 (.09)	914.00	-.67	.503
Heterosexual (83)	.50 (.16)	.34 (.09)	614.50	-1.20	.231
LGB (9)	.00 (.00)	.00 (.00)	7.00	.00	1.000
Nontraditional Sectors (63)	2.86 (.23)	1.28 (.23)	383.00	-4.04	.000***
Heterosexual 25)	2.47 (.29)	1.86 (.35)	210.00	-1.17	.241
LGB (38)	3.33 (.28)	.85 (.25)	4.00	-4.11	.000***

Note: Standard errors in parentheses below means. LGB category includes lesbian, gay, bisexual and 'other' categories.

In table 6.12 women and men's reports of gender discrimination are compared within sexual orientation categories. Only two comparisons are found to reach statistical significance. For men in the female dominated sector, heterosexual men *(M*=1.86, *SE*=.35) perceive greater levels of discrimination than LGB men *(M*=.85, *SE*=.25), *U*=134.00, *z*=2.19, *p*<.05. In the male-dominated

sectors, LGB owners *(M*=2.86, *SE*=.40) perceive greater levels of discrimination than LGB men *(M*=1.18, *SE*=.17), *U*=325.00, *z*=-3.35, *p*<.001.

TABLE 6.12 EXPERIENCE OF DISCRIMINATION BY SEXUAL ORIENTATION, SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	LGB	Heterosexual	*U*	*z*	*p*
Women (113)	2.09 (.34)	1.47 (.17)	809.00	-.17	.096
Men (114)	.55 (.19)	.53 (.10)	900.00	-.37	.714
Female-dominated Sector (58)	.55 (.19)	1.00 (.19)	455.00	1.35	.176
Women (31)	.00 (.00)	.50 (.16)	115.50	1.87	.139
Men (21)	.85 (.25)	1.86 (.35)	134.00	2.19	.038*
Male-dominated Sectors (111)	2.86 (.40)	1.18 (.17)	325.00	-3.35	.001**
Women (50)	3.33 (.28)	2.47 (.29)	170.00	-1.34	.180
Men (61)	.00 (.00)	.34 (.09)	73.00	.44	.630
Integrated Sector (58)	.89 (.35)	.61 (.12)	192.00	-.70	.484
Women (32)	2.00 (.00)	.93 (.19)	428.00	-2.09	.054
Men (28)	.00 (.00)	.19 (.09)	62.50	1.04	.527
Traditional Sectors (92)	.00 (.00)	.39 (.08)	477.00	1.80	.072
Nontraditional Sectors (77)	2.04 (.31)	2.31 (.24)	709.00	.65	.514

Note: Standard errors in parentheses below means. LGB category includes lesbian, gay, bisexual and 'other' categories.

Positive discrimination: Sex analyses

Next, Mann-Whitney tests with sex of business owner as the between-subjects factor for each sector are used to compare respondents' reports of preferential treatment or 'positive discrimination'. These results are summarized in table 6.13. In the aggregate, incidence of perceived positive discrimination was very small. The mean for women is just 0.69, and for men, 0.58; the difference is insignificant. In fact, there are no significant sex differences in any of the sector-based samples. Perhaps the most interesting

point to note is that women in male-dominated sectors reported the greatest incidence of positive discrimination, with a mean of 0.86. This is discussed in greater detail in the next section.

TABLE 6.13 SEX DIFFERENCES IN EXPERIENCE OF POSITIVE DISCRIMINATION, BY SECTOR TYPE

Group (n)	Women	Men	*U*	*z*	*p*
All (240)	0.69 (0.09)	0.58 (0.09)	6524.00	-1.44	.150
Female-dominated Sector (58)	0.79 (0.20)	0.76 (0.21)	390.00	-0.53	.599
Male-dominated Sectors (119)	0.86 (0.15)	0.62 (0.13)	1485.00	-1.66	.097
Integrated Sector (63)	0.32 (0.10)	0.31 (0.11)	483.50	-0.17	.863
Traditional Sectors (92)	0.79 (0.20)	0.62 (0.13)	788.50	-1.19	.233
Nontraditional Sectors (85)	0.86 (0.15)	0.76 (0.21)	733.00	-0.80	.422

Positive discrimination: Sector analyses

Next, I test for sector-based differences in experience of positive discrimination (table 6.14). A Kruskal-Wallis test indicates significant differences among owners in female-dominated, male-dominated and integrated sectors, $H(2)=9.65$, $p<.01$. Follow-up Mann Whitney tests show that perceptions of positive discrimination are significantly greater among owners in the female-dominated sector compared to those in the integrated sector, $U=1672.00$, $z=-2.464$, $p=<.0167$. Also, owners of firms in male-dominated sectors reported significantly more experiences of positive discrimination than those in the integrated sector, $U=3234.00$, $z=-3.02$, $p<.01$. But reports of positive discrimination by owners in the female- and male-dominated sectors were similar, $U=3748.50$, $z=-0.21$, $p=.834$.

TABLE 614: MEANS AND STANDARD DEVIATIONS ON POSITIVE DISCRIMINATION, BY SEX OF OWNER AND GENDER-DOMINATION OF INDUSTRY

Group (n)	*Min*	*Max*	*Mean score*	*Std Dev.*
All (240)	0	4	0.63	1.00
Female-dominated Sector (58)	0	4	0.78	1.09
Sex-integrated Sector (63)	0	2	0.32	0.59
Male-dominated Sectors (119)	0	4	0.73	1.09
Females (119)	0	4	0.69	1.02
Female-dominated Sector (29)	0	4	0.79	1.08
Sex-integrated Sector (34)	0	2	0.32	0.59
Male-dominated Sectors (56)	0	4	0.86	1.14
Males (121)	0	4	0.58	0.98
Female-dominated Sector (29)	0	3	0.76	1.12
Sex-integrated Sector (29)	0	2	0.31	0.60
Male-dominated Sectors (63)	0	4	0.62	1.04

There are significant differences among the three groups of female owners, $H(2)=6.94$, $p<.05$. The differences between women in the female-dominated and sex-integrated sectors ($U=363.50$, $z=-2.08$, $p=.038$) and the female-dominated and male-dominated sectors ($U=795.00$, $z=-0.17$, $p=.863$) are non-significant, But women in male-dominated sectors did experience significantly more incidents of positive discrimination than those in the integrated sector, $U=682.00$, $z=-2.54$, $p<.0167$. The final analysis on men owners reveals no differences among men in female-dominated, sex-integrated and male-dominated industries on experience of positive discrimination, $H(2)=2.25$, $p=.324$.

Positive discrimination: Ethnicity analyses

Table 6.15 disaggregates the data relating to perceived discrimination on the basis of ethnicity. In this table, women and men are compared within ethnicity categories. Two interesting results are yielded. Firstly, although mean scores for positive discrimination are generally low across the board, among the minority groups, women *(M=.78, SE=.16)* perceive greater levels of positive discrimination than do men *(M=.69, SE=.09)*, and Mann-Whitney tests show

that the difference is statistically significant, U=773.50, z=-2.77, p<.01. In contrast, there is no significant difference between the levels of positive discrimination perceived by White/Caucasian women and men. Interestingly, once the data is disaggregated by sector, the differences between the sexes in this regard remains only within the male-dominated sectors, U=152.00, z=-2.24, p<.05.

TABLE 6.15 EXPERIENCE OF POSTIVE DISCRIMINATION BY SEX, ETHNICITY AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	Women	Men	*U*	*z*	*p*
All White/Caucasian (147)	.63 (.11)	.75 (.13)	2748.00	.23	.817
All Minority Ethnicities (93)	.78 (.16)	.69 (.09)	773.50	-2.77	.006**
Female-dominated Sector (60)	0.79 (0.20)	0.76 (0.21)	390.00	-0.53	.599
White/Caucasian (39)	.95 (.28)	.94 (.30)	162.50	-.25	.821
Minority Ethnicities (21)	.44 (.18)	.59 (.26)	49.50	-.38	.754
Male-dominated Sectors (119)	0.86 (0.15)	0.62 (0.13)	1485.00	-1.66	.097
White/Caucasian (75)	.73 (.16)	.78 (.17)	632.00	-.51	.607
Minority Ethnicities (44)	1.00 (.27)	.22 (.10)	152.00	-2.24	.025*
Integrated Sector (63)	0.32 (0.10)	0.31 (0.11)	483.50	-0.17	.863
White/Caucasian (35)	.15 (.08)	47 (.19)	180.50	1.39	.314
Minority Ethnicities (28)	.57 (.20)	.14 (.10)	68.00	-1.74	.178
Traditional Sectors (94)	0.79 (0.20)	0.62 (0.13)	788.50	-1.19	.233
White/Caucasian (67)	.95 (.28)	.78 (.17)	398.50	-.81	.419
Minority Ethnicities (27)	.44 (.18)	.22 (.10)	63.00	-1.17	.375
Nontraditional Sectors (85)	0.86 (0.15)	0.76 (0.21)	733.00	-0.80	.422
White/Caucasian (47)	.73 (.16)	.94 (.30)	259.00	.10	.923
Minority Ethnicities (38)	1.00 (.27)	.50 (.26)	120.00	-1.26	.269

Note: Standard errors in parentheses below means

Table 6.16 compares the results for positive discrimination for minorities and White/Caucasian groups within sex categories. Only one statistically significant result is found among men, White/Caucasian owners *(M*=.75, *SE*=.13) perceive greater levels of positive discrimination than minority owners *(M*=.69, *SE*=.09), *U*=1306.50, *z*=-2.49, *p*<.05.

TABLE 6.16 EXPERIENCE OF POSITIVE DISCRIMINATION BY ETHNICITY, SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	White/ Caucasian	Minorities	*U*	*z*	*p*
Women (119)	.63 (.11)	.78 (.16)	1822.00	.65	.518
Men (121)	.75 (.13)	.69 (.09)	1306.50	-2.49	.013*
Female-dominated Sector (58)	.95 (.20)	.48 (.16)	310.00	-1.41	.159
Women (31)	.95 (.28)	.44 (.18)	72.50	-.90	.417
Men (29)	.94 (.30)	.59 (.26)	79.50	-1.15	.325
Male-dominated Sectors (119)	.76 (.12)	.68 (.17)	1537.00	-.70	.487
Women (56)	.73 (.16)	1.00 (.27)	404.00	.25	.802
Men (63)	.78 (.17)	.22 (.10)	308.00	-1.73	.084
Integrated Sector (63)	.29 (.10)	.36 (.12)	518.00	.51	.610
Women (34)	.15 (.08)	.57 (.20)	182.00	1.91	.057
Men (29)	.47 (.19)	.14 (.10)	83.00	-1.29	.354
Traditional Sectors (92)	.83 (.15)	.30 (.09)	684.50	-1.88	.060
Nontraditional Sectors (85)	.81 (.15)	.84 (.21)	859.50	-.33	.745

Note: Standard errors in parentheses below means

Positive discrimination: Sexual orientation analyses

Table 6.17 compares women and men's reported positive discrimination within sexual orientation categories, disaggregated by sector. There are two statistically significant findings. In the male-dominated sectors, heterosexual

women *(M*=1.00, *SE*=.17) perceived higher levels of positive discrimination than did heterosexual men *(M*=.66 *SE*=.14), *U*=826.00, *z*=-2.39, *p*<.05. It is noteworthy that no such result was found between LGB men and women. Additionally, for LGB individuals working in industries not traditional for their gender, men *(M*=.77, *SE*=.23) perceived greater positive discrimination than did women *(M*=.00, *SE*=.00), *U*=120.00, *z*=2.90, *p*<.05.

TABLE 6.17 EXPERIENCE OF POSITIVE DISCRIMINATION BY SEX, SEXUAL ORIENTATION AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	Women	Men	*U*	*z*	*p*
Heterosexual (182)	.70 (.09)	.64 (.11)	3638.00	-1.57	.116
LGB (43)	.43 (.24)	.50 (.17)	266.50	1.16	.245
Female-dominated Sector (58)	.79 (.20)	.76 (.21)	390.00	-.53	.599
Heterosexual (36)	.59 (.14)	.86 (.38)	143.00	-.40	.737
LGB (20)	1.43 (.69)	.77 (.23)	40.00	-.47	.699
Male-dominated Sectors (119)	.86 (.15)	.62 (.13)	1485.50	-1.66	.097
Heterosexual (97)	1.00 (.17)	.66 (.14)	826.00	-2.39	.017*
LGB (14)	.00 (.00)	.00 (.00)	12.00	.00	1.000
Integrated Sector (63)	.32 (.10)	.31 (.11)	483.50	-.17	.863
Heterosexual (49)	.39 (.12)	.43 (.15)	299.50	.14	.893
LGB (9)	.00 (.00)	.00 (.00)	10.00	.00	1.000
Traditional Sectors (92)	.79 (20)	.62 (.13)	788.50	-1.19	.233
Heterosexual (81)	.59 (.14)	.66 (.14)	604.50	-.54	.592
LGB (9)	1.43 (.69)	.00 (.00)	3.00	-1.30	.333
Nontraditional Sectors (63)	.86 (.15)	.76 (.21)	1168.00	-.80	.422
Heterosexual (52)	1.00 (.17)	.86 (.38)	200.00	-1.46	.143
LGB (25)	.00 (.00)	.77 (.23)	120.00	2.90	.022*

Note: Standard errors in parentheses below means. LGB category includes lesbian, gay, bisexual and 'other' categories.

Within sex, sexual orientation comparisons are shown in table 6.18. This table shows that on the whole, heterosexual women *(M=*.70, *SE=*.09) perceived greater levels of positive discrimination than LGB women, *(M=*.43, *SE=*.24), *U*=1331.00, *z*=2.61, *p*<.01. Once the data is disaggregated by sector, this finding only holds for the male-dominated sectors, *U*=384.00, *z*=3.90, *p*<.001. In addition, heterosexual women and men in the integrated industry *(M=*.41, *SE=*.09), perceive greater positive discrimination than LGB women and men *(M=*.00, *SE=*.00), in that industry, *U*=292.50, *z*=1.98, *p*<.05.

TABLE 6.18 EXPERIENCE OF POSITIVE DISCRIMINATION BY SEXUAL ORIENTATION, SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

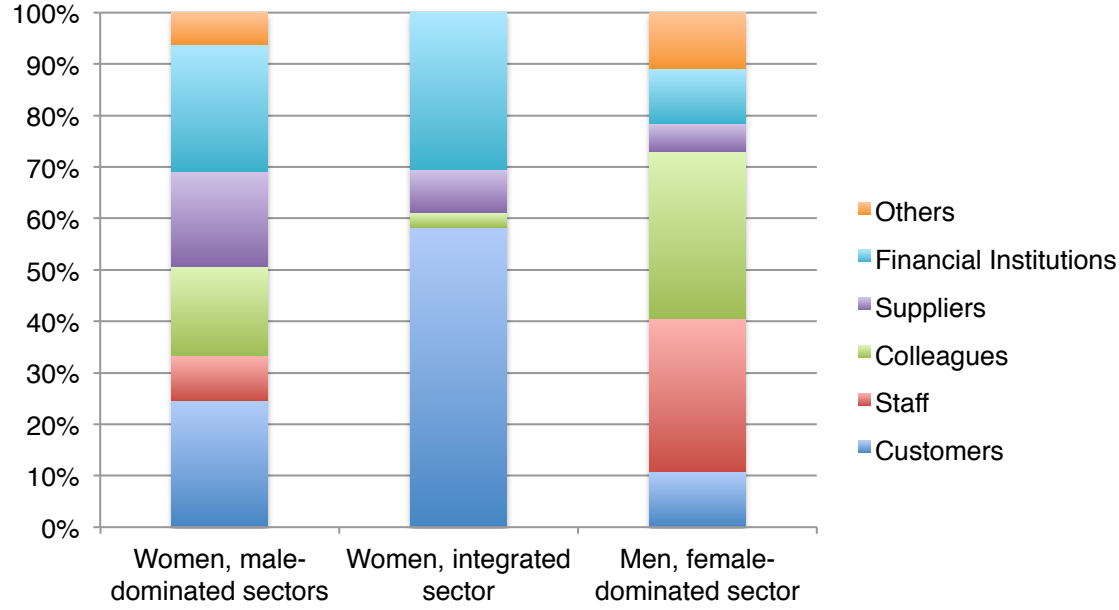
Group (n)	LGB	Heterosexual	*U*	*z*	*p*
Women (111)	.43 (.24)	.70 (.09)	1331.00	2.61	.009**
Men (114)	.50 (.17)	.64 (.11)	964.00	.21	.834
Female-dominated Sector (58)	1.00 (28)	.69 (.17)	307.50	-.99	.323
Women (29)	1.43 (.69)	.59 (.14)	62.50	-.81	.469
Men (27)	.77 (.23)	.86 (.38)	82.00	-.49	.685
Male-dominated Sectors (111)	.00 (.00)	.79 (.11)	1022.00	3.42	.001
Women (50)	.00 (.00)	1.00 (.17)	384.00	3.90	.000***
Men (61)	.00 (.00)	.66 (.14)	82.00	1.08	.395
Integrated Sector (58)	.00 (.00)	.41 (.09)	292.50	1.98	.048*
Women (32)	.00 (.00)	.39 (.12)	74.00	1.30	.332
Men (28)	.00 (.00)	.43 (.15)	70.00	1.47	.278
Traditional Sectors (90)	1.11 (.56)	.64 (.11)	333.50	-.47	.637
Nontraditional Sectors (77)	.40 (.14)	.96 (.16)	845.00	2.33	.020*

Note: Standard errors in parentheses below means. LGB category includes lesbian, gay, bisexual and 'other' categories.

Discrimination from financial institutions

Figure 6.3 illustrates more closely the contribution of each source to the overall level of discrimination for the three groups that experience the highest overall levels of discrimination: women in male-dominated sectors, women in the integrated sector and men in the female-dominated sector. Discrimination against women owners of firms in the male-dominated sectors stemmed fairly evenly from all six sources. Almost 60 percent of the discrimination experienced by women in the integrated sector came from customers, with financial institutions contributing one-third. Two-thirds of the discrimination against nontraditional men came from staff and colleagues.

FIGURE 6.3: SOURCES OF DISCRIMINATION, MOST DISCRIMINATED GROUPS



Notes: Women, male-dominated sectors *(n*=56), Women, integrated sector *(n*=34). Men, female-dominated sector *(n*=29).

The groups are now compared on the basis of their perception of discrimination from financial institutions. Percentages were reported earlier reported in table 6.6. 46.3 percent of women owners said that they had experienced discrimination from financiers. Disaggregating this figure by sector, it is observed that 16.1 percent of women in the female-dominated sector, 32.4 percent of women in the integrated sector and 71.4 percent of women in the male-dominated sectors said they had experienced

discrimination from financial institutions. Only 3.3 percent of male owners said that a financial institution had discrimination against them on the basis of their gender; all respondents were based in the female-dominated sector.

In a three-way loglinear analysis, a final model with a likelihood ratio of $\chi^2(0)=0$, $p=1$ was produced, retaining all effects. In other words, the highest-order interaction (sex of owner (male, female) x sex-domination of sector (male-dominated, integrated, female-dominated) x perception of discrimination from financiers (no, yes) was significant, $\chi^2(1)=23.39$, $p<.001$. To interpret this effect, separated chi-square tests were performed for men and women owners. For women owners, there was a significant association between sex-domination of sector and perception of discrimination from financiers, $\chi^2(2)=28.33$, $p<.001$. Odds ratios indicated that the odds for women of perceiving discrimination from providers of finance was 12.37 times higher if the woman owned a firm in the male-dominated sectors than in the female-dominated sector. Hypothesis 2a is supported. For male owners, and in contrary to hypothesis 2b, there was also a significant association between sex-domination of sector and perception of discrimination from financiers, $\chi^2(2)=12.26$, $p<.01$. Odds ratios could not be calculated for male owners because the number of owners in the male-dominated sectors experiencing discrimination was zero.

Table 6.19 compares owners' experiences of discrimination on the basis of sexual orientation and sex. Because of the very small sample sizes, it is not possible to disaggregate this data by sector. 69.6 percent ($n=16$) of LGB women said that they had experienced discrimination from financial institutions on the basis of their gender, compared to 37.8 per cent (n=34) of heterosexual women. This difference is statistically significant, $\chi^2(1)=7.51$, $p<.01$. No LGB men indicated discrimination, compared to 4.3 percent ($n=4$) of heterosexual men – an insignificant difference. Within sexual orientation categories, sex differences can also be observed. Among LGB owners, more women (69.6 percent, $n=16$) than men ($n=0$) indicated discrimination from this

source; the difference is significant, $\chi^2(1)=2.16$, $p<.001$. Among heterosexual owners, more women (37.8 percent, n=34) than men (4.3 per cent, n=4) also reported discrimination. The results are presented with a small sample size caveat.

TABLE 6.19 PROPORTION REPORTING EXPERIENCE OF DISCRIMINATION FROM FINANCIERS BY SEXUAL ORIENTATION, AND CHI SQUARES

	LGB	Heterosexual	Chi Square	df	p
Women-owned	69.6 (*n*=16)	37.8 (*n*=34)	7.51	1	.009**
Men-owned	0 (*n*=0)	4.3 (*n*=4)	.88	1	.457
Chi-square	22.16	31.53			
df	1	1			
p	.000***	.000***			

Notes: Displays percentage indicating experience of discrimination from financial institutions. n in parentheses. Two tailed tests.

Table 6.20 compares owners' experiences of discrimination on the basis of ethnicity orientation and sex. Because of the very small sample sizes, it is not possible to disaggregate this data by sector. 50 percent (*n*=36) of White/Caucasian women said that they had experienced discrimination from financial institutions on the basis of their gender, compared to 40.8 per cent (n=20) of minority ethnic women. This difference is statistically insignificant, $\chi^2(1).99$, p=.357. The very small difference between White/Caucasian (2.6 percent, n=2) and ethnic minority men (4.5 percent, n=2) is also insignificant, $\chi^2(1)=.33$, $p=.621$. Within ethnicity categories, sex differences can however, be observed. Among White/Caucasian owners, more women (50 per cent, n=36) than men (2.6 percent, n=2) indicated discrimination from this source; the difference is significant, $\chi^2(1)=44.01$, $p<.001$. Among White/Caucasian owners, more women (50 per cent, n=36) than men (2.6 percent, n=2) indicated discrimination from this source; the difference is significant, $\chi^2(1)=44.01$, $p<.001$. The sex difference was similar among ethnic minority

owners, $\chi^2(1)=16.89$, $p<.001$.

TABLE 6.20 PROPORTION REPORTING EXPERIENCE OF DISCRIMINATION FROM FINANCIERS BY ETHNICITY, AND CHI SQUARES

	White/Caucasian	Minority ethnicities	Chi Square	df	p
Women-owned	50 (*n*=36)	40.8 (n=20)	.99	1	.357
Men-owned	2.6 (*n*=2)	4.5 (n=2)	.33	1	.621
Chi-square	44.01	16.89			
df	1	1			
p	.000***	.000***			

Notes: Displays percentage indicating experience of discrimination from financial institutions. n in parentheses. Two tailed tests.

Acquisition of financial resources: chi square tests

Next, I examined the extent to which owners were able to leverage financial resources from their networks. A greater proportion (94.4 percent, n=84) of men than women (77.0 percent, n=87) said they had successfully managed to secure a loan or other form of investment from a network member[24], and the difference is statistically significant, $\chi^2(1)=11.59$, $p<.001$. Based on the odds ratio, the odds of a business owner successfully securing a loan or investment from a network member is 5.02 times higher if they were a man than if they were a woman. There are also significant differences among the three groups of women owners ($\chi^2(2)= 7.68$, $p<.05$) on this measure. 96.3 percent (n=26) of women owners in the female-dominated sector received financial assistance compared to 73.5 percent (n=25) of those in the integrated sector and 69.2 percent of those in the male-dominated sector (n=36). Follow up Mann Whitney tests with a Bonferonni correction set at $p=.0167$ show that the difference between women in the female-dominated and sex-integrated sectors, (U=354.50, z=-2.37, p=.018), and integrated and male-dominated sectors, (U=846.00, z=-0.43, p=.670) are non-significant. But the difference between women owners in the female- and male-dominated sectors, are

[24] These proportions exclude those respondents who did not actively seek finance

significant, *U*=512.00, *z*=-2.76, p<.0167. Hypothesis 2c is supported. For men, there were also significant differences between the groups, $\chi^2(2)= 16.52$, *p*<.001. Hypothesis 2d is unsupported. 100 percent of those in the integrated and male-dominated sectors (n=68 combined) received the financial help, compared to just 78.3 percent (n=16) of those in the female-dominated sector.

Acquisition of financial resources: Discriminant function analysis

Two discriminant function analyses are now performed. The first assesses the variables capable of discriminating among respondents that were successful or unsuccessful in their attempts to secure financial resources. Variables representing firm characteristics (sector, legal status, business stage, age of firm, number of employees and growth orientation) and owner characteristics (sex, age, marital status, human capital score, ethnicity, prior experience, education, sex type of major, sexual orientation, network homogeneity, discrimination score) are entered into the model. Canonical correlations represent the relative contribution of each predictor to group separation, with higher values contributing most Bargmann (1970). Just three items entered the final equation – age of respondent, network homogeneity and education level – with 84.7 percent of cases correctly classified. One significant function was calculated, Λ=0.78, $\chi^2(3)$=29.52, *p*<.001. The loading matrix of correlations between predictor variables and the discriminant function, together with the descriptive data reported in table 6.22 suggest that the primary variables distinguishing successful finance seekers from unsuccessful seekers are their age, the homogeneity of their networks, and their education levels. Owners that were successful in their attempts to acquire financial resources were older, more highly educated, and they tended to have networks that were more homogeneous than owners who were unsuccessful in their attempts to secure a loan or other type of investment.

The second analysis, summarized in table 6.23, examines the variables capable of discriminating among respondents that obtained finance from a man or a woman. Again, just three items entered the final equation – age of

firm, sector and business stage – with 78.8 percent of cases correctly classified. One significant function was calculated, Λ=0.73, $\chi^2(3)$=31.27, p<.001. The loading matrix of correlations between predictor variables and the discriminant function, together with the descriptive data reported in table 6.24 suggest that the primary variables distinguishing owners receiving financial resources from men and women are sex composition of sector and firm age. Owners that obtained finance from a male provider tended to own younger firms in the male-dominated or integrated sectors. Those that obtained finance from a woman tended to own older firms in the female-dominated sector.

TABLE 6.21: SUMMARY OF STEPWISE PREDICTION OF ACQUISITION OF FINANCIAL RESOURCES (*N*=227)

Step		**Standardised coefficients**	**Structure Matrix**	**Wilks lambda**	***F***	***df***
Variables retained						
1	Respondent age	.66	.65	.89	14.36	1
2	Network homogeneity	.66	.60	.83	12.72	2
3	Education	.50	.35	.78	11.12	3
Eigenvalue	.28					
Canonical R	.47					
Variables excluded						
	Firm age		.38			
	Education		.35			
	Discrimination		-.28			
	Marital status		.25			
	Business stage		.20			
	Ethnicity		-.17			
	No. of employees		.15			
	Growth orientation		-.15			
	Sexual orientation		-.14			
	Sector		-.13			
	Experience		.13			
	Gender		-.07			
	Legal status		-.04			

	Human capital	-.03	
	Major	-.02	

TABLE 6.22: DESCRIPTIVE DATA DISTINGUISHING GROUPS

	Acquired finance *(n=147)*	**Did not acquire finance *(n=31)***
Mean age	46.13	37.13
Mean network homogeneity	62.42	46.47
% with degree	65.2	58.1

TABLE 6.23: SUMMARY OF STEPWISE PREDICTION OF SEX OF PROVIDER OF FINANCIAL RESOURCES *(N=227)*

Step		**Standardised coefficients**	**Structure Matrix**	**Wilks lambda**	***F***	***df***
Variables retained						
1	Sector	.81	.55	.90	11.38	1
2	Firm age	-.91	-.39	.81	11.34	2
3	Business stage	.70	.29	.73	12.21	3
Eigenvalue	.37					
Canonical R	.52					
Variables excluded						
	Human capital		.33			
	Education		-.28			
	Sexual orientation		-.24			
	Gender		-.23			
	No. of employees		.20			
	Legal status		.16			
	Marital status		-.15			
	Growth orientation		.09			
	Closeness to resource provider		.08			
	Major		-.06			
	Network homogeneity		.06			
	Experience		-.04			
	Ethnicity		-.03			
	Discrimination		-.02			
	Relationship to resource provider		.02			

Respondent age	.00

TABLE 6.24: DESCRIPTIVE DATA DISTINGUISHING GROUPS

	Male provider	Female provider
% female-dominated	15.2	56.4
% integrated	28.0	12.8
% male-dominated	56.8	30.8
Mean firm age	157.51	226.46
% young or new firms	13.6	15.4
% well established firms	86.4	84.6

Notes: firm age is measured in months.

6.6 Network composition and resource acquisition

Network homogeneity: Descriptive Data

Before discussing differences in *overall* network homogeneity, I first make some descriptive observations regarding homogeneity of specific network relationships. Mean homogeneity scores of network contacts by sex of owner and sex composition of sector are displayed in table 6.25. Recall that a homogeneity score of 0 indicates a perfectly heterogeneous network, while a score of 100 indicates a perfectly homogeneous network. The results suggest some fairly clear patterns. Firstly, in general, internal networks (that is, ties to individuals within the same organization) appear to be more homogeneous than external networks. For example, for the full sample, the mean homogeneity of business partners is 75.90 but the mean homogeneity of clients is 53.84. And, the mean homogeneity of members of the management team is 65.73, whereas the mean homogeneity of members of social organizations to which owners belong was 59.31. This observation provides some support for the theory of *choice homophily*: perhaps individuals deliberately prefer to associate with members of the same sex where they are able to make clear choices, but are not able to be as choosy in other domains of business life.

Secondly, women's associations are apparently less homogeneous than those of men. For example, the mean homogeneity score of women-owned Boards of Directors is 62.35 compared to 81.04 for men-owned Boards. And, the mean score for members of trade organizations to which women belong is 46.56 compared to 63.68 for members of trade organizations to which men belong. These observations suggest that overall, women business owners network across sex lines to a greater degree than men business owners.

Thirdly, the results displayed in table 6.25 suggest that women owners in the female-dominated sector largely network with other women, women owners in the male-dominated sectors largely network with men, and women owners in the sex integrated sector network with both men and women. Said differently, as the proportion of men-owned firms in the sector increases, the network homogeneity of women owners falls. For example, the mean network homogeneity score of the suppliers to women-owned firms in the female-dominated sector is 72.37 compared to 60.19 for those supplying businesses in the sex-integrated sector and just 37.96 for those supplying businesses in the male-dominated sectors. For men owners, the situation is reversed. Men owners in the female-dominated sector largely network with women (but also a high proportion of men, especially among internal associates), men owners in the sex-integrated sector networked with both men and women (but mostly men), and men owners in the male-dominated sectors rarely associate with women. For example, the mean network homogeneity score of the staff in men-owned firms in the female-dominated sector is just 24.04 compared to 53.00 for staff of firms in the sex-integrated sector and 85.09 for those working in businesses in the male-dominated sectors. These observations provide support for the theory of *induced homophily*: the idea that associations are homogeneous to the extent that structural environments are homogeneous.

TABLE 6.25 MEAN HOMOGENEITY OF NETWORK CONTACTS BY SEX AND SECTOR

	Partners	Board	Management	Suppliers	Staff	Clients	Trade	Professional	Social	Other	Discussants
All	75.90 *(166)*	72.24 (172)	65.73 (186)	62.07 (203)	60.22 (203)	53.84 (228)	55.00 (215)	56.09 (230)	59.31 (196)	55.13 (234)	57.98 (238)
Female-dominated	77.03 (37)	69.08 (38)	61.96 (46)	58.93 (42)	55.09 (54)	50.00 (60)	51.53 (49)	50.00 (58)	57.07 (46)	58.75 (60)	62.08 (60)
Sex-integrated	72.62 (42)	68.09 (47)	69.39 (49)	64.00 (50)	59.62 (52)	52.27 (55)	54.09 (55)	54.82 (57)	50.53 (47)	50.42 (59)	55.33 (61)
Male-dominated	77.01 (87)	75.86 (87)	65.66 (91)	62.39 (111)	63.40 (97)	56.64 (113)	56.98 (111)	59.78 (115)	64.32 (103)	55.65 (115)	57.26 (117)
Females	66.23 (77)	62.35 (81)	58.24 (91)	50.50 (100)	57.11 (95)	48.08 (117)	46.56 (109)	50.21 (117)	58.03 (109)	40.55 (119)	50.41 (121)
Female-dominated	90.00 (20)	84.21 (19)	88.04 (23)	72.37 (19)	83.93 (28)	71.77 (31)	74.00 (25)	70.69 (29)	72.32 (28)	59.68 (31)	62.90 (31)
Sex-integrated	65.79 (19)	56.82 (22)	66.35 (26)	60.19 (27)	65.74 (27)	46.88 (32)	44.17 (30)	46.09 (32)	44.83 (29)	38.28 (32)	50.00 (34)
Male-dominated	53.95 (38)	55.00 (40)	36.90 (42)	37.96 (54)	32.50 (40)	35.19 (54)	35.19 (54)	41.96 (56)	57.69 (52)	31.25 (56)	43.75 (56)
Males	84.27 (89)	81.04 (91)	72.89 (95)	73.30 (103)	62.96 (108)	59.91 (111)	63.68 (106)	62.17 (113)	60.92 (87)	70.22 (115)	65.81 (117)
Female-dominated	61.76 (17)	53.95 (19)	35.87 (23)	47.83 (23)	24.04 (26)	26.72 (29)	28.13 (24)	29.31 (29)	33.33 (18)	57.76 (29)	61.21 (29)
Sex-integrated	78.26 (23)	78.00 (25)	72.83 (23)	68.48 (23)	53.00 (25)	59.78 (23)	66.00 (25)	66.00 (25)	59.72 (18)	64.81 (27)	62.04 (27)
Male-dominated	94.90 (49)	93.62 (47)	90.31 (49)	85.53 (57)	85.09 (57)	76.27 (59)	77.63 (57)	76.69 (59)	71.08 (51)	78.81 (59)	69.67 (61)

Notes: *n* in parentheses

Network homogeneity: Sex analyses

Sex differences in mean network homogeneity are displayed in table 6.26. Looking firstly at the full sample and aggregated across sectors, women *(M*=52.79, *SE*=2.30) have significantly less homogeneous networks than men *(M*=67.33, *SE*=2.13), *U*=4084.00, *z*=-4.43, *p*<.001. Hypothesis 3a is supported. Looking at owners of firms in the female-dominated industry, the differences are reversed. There, men *(M*=39.43, *SE*=3.14) have substantially and significantly less homogeneous networks than women *(M*=75.58, *SE*=3.62), U=75.00, z=-4.43, *p*<.001. Put another way, men owners of firms in the female-dominated industry associate with women to a greater degree than men in this sample as whole. Now, in the male-dominated sectors, the opposite trend is observed; women *(M*=41.70, *SE*=3.09) have significantly lower scores than men *(M*=81.12, *SE*=1.77), U=275.00, z=-7.71, *p*<.001. In the integrated sector, there are sex differences, but they are much smaller than those observed in the segregated industries. In the integrated sector, the average woman has a network homogeneity score of 53.48 (*SE*=2.97), compared to 67.14 (*SE*=2.34) for men, U=117.00, z=-3.78, *p*<.001.

TABLE 6.26 SEX DIFFERENCES IN MEAN NETWORK HOMOGENEITY

Group (n)	***Women***	***Men***	***U***	***z***	***p***
All (223)	52.79	67.33	4084.00	-4.43	.000
	(2.30)	(2.13)			
Female-dominated Sector (58)	73.58	39.43	75.00	-5.38	.000
	(3.62)	(3.14)			
Male-dominated Sectors (115)	41.70	81.12	275.00	-7.71	.000
	(3.09)	(1.77)			
Integrated Sector (50)	53.48	67.14	117.00	-3.78	.000
	(2.97)	(2.34)			
Traditional Sectors (78)	73.58	81.12	685.00	-1.52	.130
	(3.62)	(1.77)			
Nontraditional Sectors (85)	41.70	39.43	793.00	-0.18	.860
	(3.09)	(3.14)			

Notes: Standard errors are in parentheses below means

Sex differences between owners operating firms in industries that are not typical for their gender are small and insignificant. In statistical terms, women *(M*=73.58, *SE*=3.62) and men *(M*=81.12, *SE*=1.77) have networks that are similarly homogeneous, *U*=685.00, *z*=-1.52, *p*=.130. And, when comparing owners of atypical firms, women *(M*=41.70, *SE*=3.09) and men *(M*=39.43, *SE*=3.14) have networks that are equally heterogeneous, *U*=793.00, *z*=-.18, *p*=.860. Together, these findings support the idea that business owners construct 'functional' networks comprised largely of same-sex others in gender typical industries, and opposite-sex others in gender atypical sectors.

Network homogeneity: Sector analyses

Table 6.27 displays the means, standard deviations and ranges of network homogeneity, by sector and sex. A Kruskal-Wallis test on the full sample indicates that sex-domination of industry does not significantly affect network homogeneity, *H*(2)=3.20, *p*=.202. But, after the sample is restricted to female owners, sex-domination of sector does affect network homogeneity, *H*(2)=32.15, *p*<.001. A Mann-Whitney test is used to clarify this finding; a Bonferroni correction was applied, so all effects are reported at a .0167 level of significance. This shows that women owners in the female-dominated industry have significantly more homogeneous networks than those in the integrated industry (*U*=148.50, *p*<.001), but there is no difference in the homogeneity levels of women owners in the male-dominated and integrated industries (*U*=516.00, *p*=.019). Finally, women owners in the female-dominated industry have significantly more homogeneous networks than those in the male-dominated industries (*U*=25.00, *p*<.001). Together, these findings support hypothesis 3b women owners in female-dominated industries have networks that are significantly more homogeneous than those of women owners in male-dominated industries.

Sex composition of industry also significantly affects the network homogeneity of male owners, *H*(3)=61.99, *p*<.001. In subsequent Mann-Whitney tests with a Bonferroni correction applied, owning a firm in the female-dominated sector

substantially and significantly reduces network homogeneity compared to owning a firm in the sex-integrated industry, U=46.00, p<.001. And, owning a firm in the male-dominated industries significantly increases homogeneity over owning a firm in the sex-integrated industry, U=237.50, p<.001. Hypothesis 3c is therefore not supported. Finally, it is worthwhile noting that irrespective of sex, owners in traditional industries *(M*=78.63, *SE*=1.71) have networks that are significantly more homogeneous than nontraditional owners *(M*=40.93, *SE*=2.29), U=688.00, z=-9.27, p<.001.

TABLE 6.27 MEANS, RANGES AND STANDARD DEVIATIONS OF NETWORK HOMOGENEITY, BY SECTOR AND SEX

Group (*n*)	Min	Max	Mean	SD
All (223)	8.33	97.73	60.03	24.45
Female-dominated Sector (58)	10	97.73	56.50	24.97
Sex-integrated Sector (50)	25	97.50	59.77	15.18
Male-dominated Sectors (115)	8.33	97.73	61.92	27.26
Females (112)	8.33	97.73	52.79	24.32
Female-dominated Sector (29)	25	97.73	73.58	19.49
Sex-integrated Sector (27)	25	97.50	53.48	15.44
Male-dominated Sectors (56)	8.33	85.71	41.70	23.11
Males (111)	10	97.73	67.33	22.41
Female-dominated Sector (29)	10	90.91	39.43	16.89
Sex-integrated Sector (23)	50	95.45	67.14	11.22
Male-dominated Sectors (59)	20	97.73	81.12	13.59

Network homogeneity: Ethnicity analyses

Table 6.28 displays the data for network homogeneity disaggregated by ethnicity. As with the previous aggregated analysis, displayed in table 6.26, most within-sector sex comparisons produce significant effects. A key difference can be observed in the integrated sector: while the sex differences between ethnic minority women (*M*=49.13, *SE*=2.33) and men (*M*=74.86, *SE*=2.69) are retained, the difference between White/Caucasian women

(*M*=56.48, *SE*=4.68) and men (*M*=61.21, *SE*=2.62) becomes insignificant, *U*=141.00, *z*=1.63, *p*=.110.

TABLE 6.28 NETWORK HOMOGENEITY BY SEX, ETHNICITY AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	Women	Men	*U*	*z*	*p*
All White/Caucasian (139)	55.90 (3.04)	66.08 (2.82)	2979.00	2.38	.017*
All Minority Ethnicities (84)	48.00 (3.39)	69.55 (3.16)	1349.00	4.20	.000***
Female-dominated Sector (58)	73.58 (3.62)	39.43 (3.14)	75.00	-5.38	.000***
White/Caucasian (39)	74.40 (4.42)	35.68 (4.24)	27.00	-4.54	.000***
Minority Ethnicities (19)	70.99 (6.10)	44.75 (4.36)	6.00	-3.06	.001**
Male-dominated Sectors (115)	41.70 (3.09)	81.12 (1.77)	3029.00	7.71	.000***
White/Caucasian (75)	42.02 (4.10)	80.23 (2.37)	1126.00	5.95	.000***
Minority Ethnicities (44)	41.33 (4.77)	83.13 (2.16)	439.00	4.91	.000***
Integrated Sector (50)	53.48 (2.97)	67.14 (2.34)	504.00	3.78	.000***
White/Caucasian (35)	56.48 (4.68)	61.21 (2.62)	141.00	1.63	.110
Minority Ethnicities (28)	49.13 (2.33)	74.86 (2.69)	110.00	3.90	.000***
Traditional Sectors (94)	73.58 (3.62)	81.12 (1.77)	1026.00	1.52	.130
White/Caucasian (63)	74.40 (4.42)	80.23 (2.37)	504.00	.77	.444
Minority Ethnicities (25)	70.99 (6.10)	83.13 (2.16)	90.00	1.64	.110
Nontraditional Sectors (85)	41.70 (3.09)	39.43 (3.14)	793.00	-.18	.860
White/Caucasian (47)	42.02 (4.10)	35.68 (4.24)	204.00	-1.13	.258
Minority Ethnicities (38)	41.33 (4.77)	44.75 (4.36)	188.00	1.01	.327

Note: Standard errors in parentheses below means

Table 6.29 disaggregates the network homogeneity data on the basis of ethnicity. In this table, White/Caucasian and minority owners are compared

within sex categories. Just one significant effect is found: in the integrated sector, White/Caucasian men (*M*=61.21, *SE*=2.62) have networks that are significantly less sex homogeneous than ethnic minority men (*M*=74.86, *SE*=2.69), *U*=107.00, *z*=2.62, *p*<.01.

TABLE 6.29 NETWORK HOMOGENEITY BY ETHNICITY, SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	White/ Caucasian	Minorities	*U*	*z*	*p*
Women (112)	55.90 (3.04)	48.00 (3.39)	1200.00	-1.77	.078
Men (121)	66.08 (2.82)	69.55 (3.16)	1508.00	.54	.589
Female-dominated Sector (58)	57.52 (4.37)	54.42 (4.56)	349.50	-.35	.728
Women (31)	74.40 (4.42)	70.99 (6.10)	58.50	-.95	.354
Men (29)	35.68 (4.24)	44.75 (4.36)	144.00	1.87	.066
Male-dominated Sectors (115)	64.09 (3.14)	58.43 (4.29)	1392.00	-.98	.328
Women (56)	42.02 (4.10)	41.33 (4.77)	368.00	-.36	.717
Men (59)	80.23 (2.37)	83.13 (2.16)	404.00	.58	.564
Integrated Sector (50)	58.60 (2.83)	61.39 (3.35)	336.50	.63	.528
Women (27)	56.48 (4.68)	49.13 (2.33)	63.50	-1.23	.231
Men (23)	61.21 (2.62)	74.86 (2.69)	107.00	2.62	.008**
Traditional Sectors (88)	78.20 (2.19)	79.73 (2.49)	789.50	.02	.985
Nontraditional Sectors (85)	39.72 (3.04)	42.41 (3.51)	977.00	.74	.458

Note: Standard errors in parentheses below means

Network homogeneity: Sexual orientation analyses

Table 6.30 displays the data for network homogeneity disaggregated by sexual orientation. The data shows that among heterosexual owners, the sex difference in network homogeneity observed earlier (table 6.26) is retained, *U*=5179.00, *z*=5.61, *p*<.001. However, among LGB owners, the sex

differences is no longer significant, *U*=152.00, *z*=-1.72, *p*=.086. As with the previous aggregated analysis, displayed in table 6.26, most within-sector sex comparisons produce significant effects. There is one difference: in the mae-dominated sectors, among LGB owners, sex differences in network homogeneity are very small and insignificant, *U*=14.00, *z*=.37, *p*=.791. However, the tiny small size (*n*=14) means that this result should be interpreted with caution.

TABLE 6.30 NETWORK HOMOGENEITY BY SEX, SEXUAL ORIENTATION AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	Women	Men	*U*	*z*	*p*
Heterosexual (166)	51.85 (2.76)	73.79 (2.76)	5179.00	5.61	.000***
LGB (42)	56.71 (5.49)	44.89 (4.83)	152.00	-1.72	.086
Female-dominated Sector (58)	73.58 (3.62)	39.43 (3.14)	75.00	-5.38	.000***
Heterosexual (36)	70.75 (4.22)	45.73 (4.88)	54.00	-3.36	.000***
LGB (19)	84.39 (4.98)	34.44 (4.01)	.00	-3.44	.000***
Male-dominated Sectors (115)	41.70 (3.09)	81.12 (1.77)	3029.00	7.71	.000***
Heterosexual (97)	39.67 (3.92)	82.38 (1.51)	1923.00	6.87	.000***
LGB (14)	43.60 (7.03)	45.00 (25.00)	14.00	.37	.791
Integrated Sector (50)	53.48 (2.97)	67.14 (2.34)	504.00	3.78	.000***
Heterosexual (36)	53.18 (3.83)	68.50 (3.05)	259.00	3.26	.001**
LGB (9)	54.55 (0.00)	72.00 (.50)	20.00	2.68	.016*
Traditional Sectors (92)	73.58 (3.62)	81.12 (1.77)	685.00	-1.52	.130
Heterosexual (81)	70.75 (4.22)	82.38 (1.51)	839.00	2.27	.024*
LGB (9)	84.39 (4.98)	45.00 (25.00)	.00	-2.04	.000***
Nontraditional Sectors (63)	41.70 (3.09)	39.43 (3.14)	793.00	-0.18	.860
Heterosexual (52)	39.67 (3.92)	45.73 (4.88)	332.00	1.36	.173
LGB (25)	43.60 (7.03)	34.44 (4.01)	56.00	-1.20	.247

Note: Standard errors in parentheses below means. LGB category includes lesbian, gay, bisexual and 'other' categories.

Finally, within-sex category, sexual orientation comparisons are given in table 6.31. This data shows no differences in the network homogeneity of LGB women (*M*=56.71, *SE*=5.49) and heterosexual women (*M*=51.85, *SE*=2.76), *U*=800.00, *z*=-.81, *p*=.416. However, the differences between LGB men (*M*=44.89, *SE*=73.79) and heterosexual men (*M*=73.79, *SE*=2.76) are large and significant, *U*=1430.00, *z*=4.87, *p*<.001. This difference is retained among men in the male-dominated sectors but disappears in the integrated and female-dominated sectors.

TABLE 6.31 NETWORK HOMOGENEITY BY SEXUAL ORIENTATION, SEX AND GENDER-TYPE OF SECTOR, MEANS AND MANN WHITNEY TESTS

Group (n)	LGB	Heterosexual	*U*	*z*	*p*
Women (104)	56.71 (5.49)	51.85 (2.76)	800.00	-.81	.416
Men (114)	44.89 (4.83)	73.79 (2.76)	1430.00	4.87	.000***
Female-dominated Sector (58)	50.21 (6.28)	61.28 (3.76)	438.00	1.50	.134
Women (29)	84.39 (4.98)	70.75 (4.22)	38.00	-1.67	.102
Men (27)	34.44 (4.01)	45.73 (4.88)	108.00	.83	.430
Male-dominated Sectors (107)	43.80 (6.54)	64.93 (2.85)	976.00	3.00	.003**
Women (50)	43.60 (7.03)	39.67 (3.92)	220.00	-.18	.856
Men (61)	45.00 (25.00)	82.38 (1.51)	101.00	2.00	.038*
Integrated Sector (45)	64.24 (3.08)	59.56 (2.85)	133.00	-.83	.425
Women (32)	54.55 (0.00)	53.18 (3.83)	32.00	-.75	.496
Men (28)	72.00 (.50)	68.50 (3.05)	35.00	-.22	.866
Traditional Sectors (86)	74.55 (8.79)	78.95 (1.73)	312.00	.00	1.00
Nontraditional Sectors (77)	38.84 (3.99)	41.30 (3.15)	655.00	.05	.957

Note: Standard errors in parentheses below means. LGB category includes lesbian, gay, bisexual and 'other' categories.

Resource acquisition and gender congruency: Sex analyses

Success in acquiring resources is calculated for each subsample and the results are presented in table 6.32. The first point to note is how remarkably able business owners were in leveraging resources; on average, owners were able to acquire resources 89.24 percent of the time. This may be linked to the sample – because of the business databases used to construct the sampling frame, very few young firms are included in this sample, and arguably, firms that are unable to successful obtain the resources they need are unlikely to survive very long.

Nevertheless, there are differences between the sexes. Overall, women *(M*=82.33, *SE*=2.16) were less successful than men *(M*=96.45, *SE*=0.52) in extracting resources from network members, *U*=4154.00, *z*=-4.32, *p*<.001. However, women *(M*=95.90, *SE*=1.14) and men *(M*=94.05, *SE*=1.27) owners in the female-dominated industry were equally successful in their attempts to secure resources, *U*=349.00, *z*=-1.59, *p*=.112. For the integrated sector, women obtained a smaller proportion of the resources that they sought than men owners did, *U*=209.00, *z*=-3.01, *p*<.01. The differences between men and women owners in the male-dominated sectors are much greater. There, women *(M*=66.58, *SE*=3.59) were substantially and significantly less successful than men *(M*=96.44, *SE*=0.66) in attaining resources, *U*=508.00, *z*=-5.97, *p*<.001.

The findings show that, where men and women owners are operating firms in sectors that are traditional for their sex, they are equally successful in their attempts to secure resources. On average, 95.90 percent (*SE*=1.14) of traditional women owners' attempts to secure a resource were successful, compared to 96.44 percent (*SE*=0.66) of traditional men owners' attempts; the small difference is statistically insignificant, *U*=864.00, *z*=-0.10, *p*=.924. In contrast, where owners are located in an industry that is sex atypical, a gender gap remains: women *(M*=66.58, *SE*=3.59) are still less able than men

to mobilize the resources they need *(M*=94.05, *SE*=1.27), *U*=308.00, *z*=-4.29, *p*<.001.

TABLE 6.32 MEAN RESOURCE ACQUISITION, BY SECTOR TYPE

Group (*n*)	Women	Men	*U*	*z*	*p*
All (220)	82.33	96.45	4154.00	-4.32	.000***
	(2.16)	(0.52)			
Female-dominated Sector (60)	95.90	94.05	349.00	-1.59	.112
	(1.14)	(1.27)			
Male-dominated Sectors (107)	66.58	96.44	508.00	-5.97	.000***
	(3.59)	(0.66)			
Integrated Sector (53)	94.55	99.48	209.00	-3.01	.003**
	(1.38)	(0.36)			
Traditional Sectors (88)	95.90	96.44	874.00	-0.10	.924
	(1.14)	(0.66)			
Nontraditional Sectors (79)	66.58	94.05	308.00	-4.29	.000***
	(3.59)	(1.27)			

Notes: Standard errors are in parentheses below mean scores.

Sector analyses

Table 6.33 presents the means and standard deviations for the groups by sex and sex-domination of sector. The first point to note is the very large standard deviation of the sample of woman-owned businesses and the sample of women-owned, male-dominated businesses: these figures suggest a large spread of scores around the mean. In other words, these subsamples are made up of women owners who were both very successful and very unsuccessful in their attempts to obtain resources from network members.

There are significant differences among owners in the female-dominated, male-dominated and sex-integrated sectors in terms of their ability to extract resources from ties, $H(2)=17.61$, $p<.001$. Follow-up Mann Whitney tests adjusted with a Bonferonni correction ($p=.0167$) show that there is no difference between owners in the female-dominated and sex-integrated

sectors, *U*=1253.00, *z*=-2.18, *p*=.029. But, owning a firm in the sex-integrated sector significantly increases success in obtaining resources over owning a firm in the male-dominated sector, *U*=1843.50, *z*=-3.89. And, owning a firm in the female-dominated sector increased success compared to owning a firm in the male-dominated sectors, *U*=2524.00, *z*=-2.41, *p*<.0167.

TABLE 6.33 RESOURCES EXTRACTED

Group (n)	*Min*	*Max*	*Mean*	*Std Dev.*
All (*220*)	30.00	100	89.33	18.01
Female-dominated Sector (*60*)	73.33	100	95.01	6.58
Sex-integrated Sector (*53*)	78.57	100	96.69	6.26
Male-dominated Sectors (*107*)	30.00	100	82.49	23.12
Females (*111*)	30.00	100	82.33	22.75
Female-dominated Sector (*31*)	80.00	100	95.90	6.32
Sex-integrated Sector (*30*)	78.57	100	94.55	7.56
Male-dominated Sectors (*50*)	30.00	100	66.58	25.35
Males (*109*)	73.33	100	96.45	5.40
Female-dominated Sector (*29*)	73.33	100	94.05	6.83
Sex-integrated Sector (*23*)	93.33	100	99.48	1.73
Male-dominated Sectors (*57*)	84.21	100	96.44	4.99

In the analysis restricted to women owners, there are also significant differences among the three groups, *H*(2)=34.61, *p*<.001. Follow up tests reveal that there is no difference between female owners in the female-dominated and sex-integrated sectors in terms of their ability to mobilize resources, *U*=418.00, *z*=-0.76, *p*=.447. However, women owners in the integrated sector are significantly more successful in obtaining resources than women in the male-dominated sector, *U*=305.00, *z*=-4.52, *p*<.001. And, women in the female-dominated sector are more successful than women in the male-dominated sector, *U*=273.00, *z*=-5.04, *p*<.001.

In the analysis on male owners, there are also significant differences among the three groups, *H*(2)=17.79, *p*<.001. Owning a firm in the integrated sector

significantly increases success in obtaining resources over owning a firm in the female-dominated sector, U=136.00, z=-4.11, p<.001 and the male-dominated sector, U=443.50, z=-2.75, p<.01, but there are no differences in success in obtaining resources between owners in the female- and male-dominated sectors, U=584.00, z=-2.38, p=.017.

Networking strategy and resource acquisition

The analysis above revealed that women owners in the male-dominated sectors were less successful than both men, and their counterparts in the female-dominated and integrated sectors in their attempts to mobilize resources from their networks. It is worthwhile here examining the differences among nontraditional women owners pursuing different networking strategies (the networking strategies of women owners in the female-dominated and integrated sectors are also shown for illustrative purposes, but no further analysis is undertaken on this subsample because all groups were very successful in obtaining resources). A nominal variable, *homogeneity_n* was derived from the homogeneity variable. This new variable had three categories: respondents with a network homogeneity score of 33 or less were coded as having *heterogeneous* networks, respondents with a network score of 66 or more were coded as having homogeneous networks, and those with a network score between 34 and 65 were coded as having a 'mixed' network. Of the 56 nontraditional women owners in the sample, 22 (39.3 percent) had a heterogeneous network, 26 (46.4 percent) had a mixed network and 8 (14.3 percent) had a homogeneous network.

Table 6.34 shows mean resources extracted, by sector and networking strategy. While women owners in the female-dominated and integrated sector were successful in obtaining resources regardless of networking strategy, for nontraditional women owners, there are, seemingly some differences among network types. For instance, the mean resource acquisition score for nontraditional women with a homogeneous network is 48.68 compared to 71.39 for a nontraditional woman with a heterogeneous network. However, a

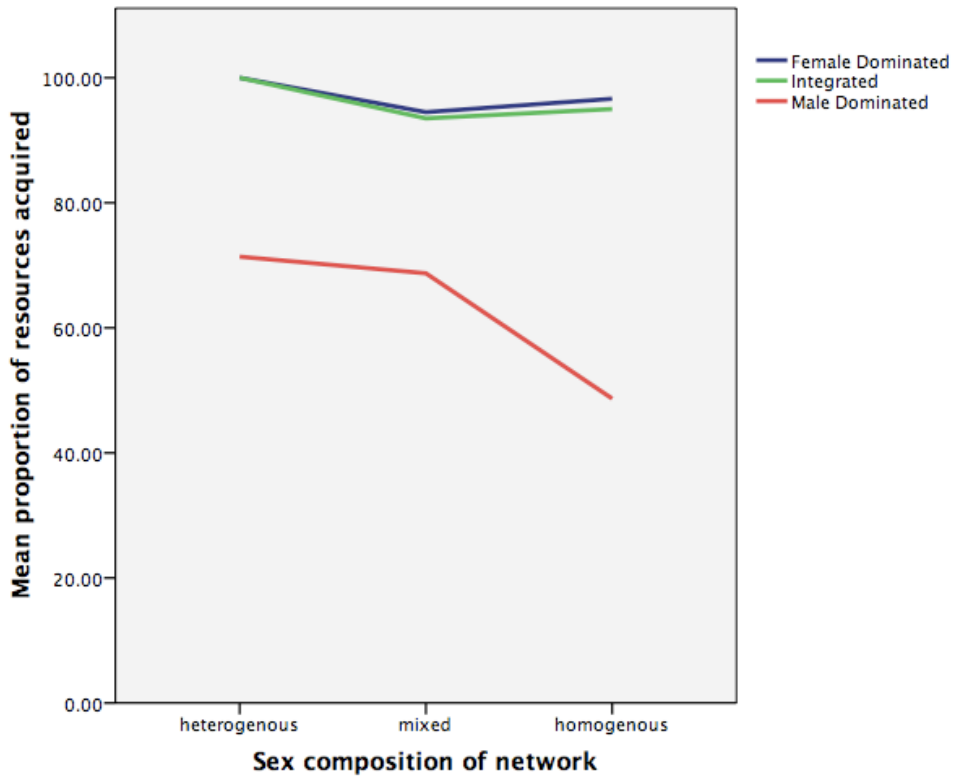
Kruskal-Wallis test showed that overall networking strategy had no impact on success in acquiring resources, $H(2)=4.89$, $p=.087$. Follow up Mann Whitney tests adjusted with a Bonferonni correction ($p=.0167$) indicate no difference between nontraditional women with a heterogeneous and a mixed network, $U=202.00$, $z=-.46$, $p=.648$, or between those with a mixed and those with a homogeneous network, $U=42.00$, $z=-2.17$, $p=.030$. Finally, the observed difference between nontraditional women with a heterogeneous and those with a homogeneous network was found to be insignificant, $U=44.00$, $z=-1.89$, $p=.070$. Hypothesis 4a is unsupported. Figure 6.4 shows networking strategy and resource acquisition for the three groups of women owners.

TABLE 6.34: MEAN RESOURCES EXTRACTED, BY SECTOR AND NETWORKING STRATEGY

Group (n)	*Mean score*	*Std Dev.*
Female dominated sector (*32*)	92.53	13.29
Homogeneous network (*16*)	96.64	4.78
Mixed network (*12)*	94.50	8.42
Heterogeneous network (*1*)	100	N/A
Integrated sector (*31*)	94.73	7.49
Homogeneous network (*2*)	95.00	.00
Mixed network (*22)*	93.51	8.49
Heterogeneous network (*1*)	100	N/A
Male dominated sector (*50*)	67.24	25.53
Homogeneous network (*8*)	48.68	31.67
Mixed network (*22)*	68.73	18.87
Heterogeneous network (*20*)	71.39	27.02

Notes: Networking strategy subsamples include only respondents that answered all questions relating to resource acquisition

FIGURE 6.4 NETWORKING STRATEGY AND RESOURCE ACQUISITION FOR WOMEN OWNERS, BY SECTOR



Discrimination: Regression analysis

To identify predictors of discrimination against business owners, three regression analyses using the General Linear Method (GLM) method are performed. For the analysis on owners in the female-dominated industries (table 6.35), sex is insignificant ($F(1,29)=0.58$, $p=.452$). Highest education is just shy of statistical significance, $F(1,29)=4.11$, $p=.052$, but there is a sex x education interaction, $F(1,29)=-1.96$, $p<.05$, indicating that the influence of education on perceived discrimination is stronger for men than for women. Estimated marginal means show that men with a degree perceived greater levels of discrimination than men without. No other variables are significant in this model.

For owners in the integrated industry (table 6.36) sex is once again insignificant, but there are two significant interactions: sex x male ties, $F(1,21)=13.11$, $p<.01$, and sex x homogeneity, $F(1,21)= 5.67$, $p<.05$. The

relationship between male ties and discrimination is stronger for women than men; in other words, obtaining a greater proportion of resources from male ties is associated with slightly higher levels of discrimination for women in the integrated industries. Owners perceived less discrimination as their social networks became more homogeneous, but the effect was greater for men than for women. For this sample, there is a main effect for ethnicity, $F(1,21)=12.34$, $p<.01$, and sexual orientation, $F(1,21)= 5.25$, $p<.05$ with non-White owners reporting less sex discrimination than White owners, and heterosexual owners reporting greater gender discrimination than non-heterosexuals. There is a main effect for strong ties, $F(1,21) = 13.46$, $p<.001$, and respondent age^2 $F(1,21)=5.08$, $p<.05$, but the effect sizes are very small. There is a larger main effect for firm age^2 $F(1,21)=8.58$, $p<.01$; reports of discrimination fell as firms matured.

For owners in the male-dominated industry (table 6.37), sex is significant, $F(1,74)=19.26$, $p<.000$. Even when demographics are controlled, women experience significantly more discrimination than men in the male-dominated sectors. There are no significant interactions for this sample. The only network measure which significantly influences discrimination is strong ties, $F(1,74)=4.93$, $p<.05$ which exerts a slight negative effect. Network homogeneity does not affect perceptions of discrimination. Hypothesis 5 is not supported. Human capital does not affect perceptions of discrimination. Thus hypothesis 8c – that nontraditional women that have experience in a similar field experience less perceived discrimination than nontraditional women with less relevant experience – is not supported. Three control variables are significant: highest education ($F(1,74)=6.09$, $p<.01$) and age^2 ($F(1,74)=2.23$, $p<.05$) both exert a positive influence on discrimination, while the relationship between marital status and discrimination is negative ($F(1,74)=16.87$, $p<.001$).

TABLE 6.35 ANALYSIS OF COVARIANCE ON EXPERIENCE OF DISCRIMINATION, FEMALE-DOMINATED INDUSTRIES

Covariate	*F (df)*	*p*	Beta (*SE*)	Estimated marginal means (*SE*)	
Gender	0.58 (1)	.452	0.25 (0.63)	*Male*	0.68 (0.37)
				Female	0.74 (0.58)
Marital status	0.19 (1)	.671	-0.17 (0.39)	*Unmarried*	0.63 (0.52)
				Married	0.79 (0.29)
Homogeneity	2.91 (1)	.099	-0.02 (0.02)		
Ethnicity	2.46 (1)	.127	0.45 (0.29)	*Not White*	0.48 (0.43)
				White	0.94 (0.38)
Sexual orientation	0.02 (1)	.889	-0.15 (0.55)	*Heterosexual*	0.68 (0.37)
				Not heterosexual	0.74 (0.51)
Human capital	0.07 (1)	.800	-0.04 (0.58)		
Male ties	1.08 (1)	.308	0.00 (0.02)		
Strong ties	2.07 (1)	.161	.002 (0.02)		
Gender x male ties	1.35 (1)	.254	-0.02 (0.02)		
Gender x strong ties	2.68 (1)	.113	-0.04 (0.02)		
Gender x sexual orientation	0.19 (1)	.667	0.44 (1.01)	*Male, heterosexual*	0.82 (0.61)
				Male, not heterosexual	0.53 (0.47)
				Female, heterosexual	0.66 (0.79)
				Female, not heterosexual	0.82 (0.46)
Gender x education	5.52 (1)	.026	-1.96 (0.83)	*Male, no degree*	-0.21 (0.48)
				Female, no degree	0.83 (0.71)
				Male, degree	1.57 (0.48)
				Female, degree	0.65 (0.55)
Sex x homogeneity	0.00 (1)	.974	0.00 (0.02)		
Sex x human capital	0.14 (1)	.707	0.24 (0.62)		
Experience	0.45 (1)	.506	-0.03 (0.50)	*Previous firm*	0.54 (0.30)
				No previous firm	0.88 (0.56)
Firm Age^2	1.12 (1)	.298	1.392E-5 (1.313E-5)		
Age^2	0.06 (1)	.810	-6.242E-5 (0.00)		
Highest education	4.11 (1)	.052	0.18 (0.53)	*No degree*	0.31 (0.44)
				Degree	1.11 (0.40)
Corrected model	4.63 (18)	.000			
Intercept	0.17 (1)	.686	0.51 (0.86)		

Notes: R^2= .74 (Adjusted R^2= -.58). Estimated marginal means were calculated from a GLM model using covariates at the following values: Age^2= 1837.17(Age=42.86), Firm age^2 = 17496.17 (Firm age=132.27 months), homogeneity=55.57, male ties=38.89 strong ties=51.85, human capital= 1.25

TABLE 6.36 ANALYSIS OF COVARIANCE ON EXPERIENCE OF DISCRIMINATION, INTEGRATED INDUSTRIES

Covariate	***F (df)***	***p***	**Beta (*SE*)**	**Estimated marginal means (*SE*)**	
Gender	0.72 (1)	.405	0.12 (0.38)	*Male*	0.74 (0.30)
				Female	1.51 (0.41)
Marital status	1.22 (1)	.283	-0.27 (0.25)	*Unmarried*	0.99 (0.28)
				Married	1.26 (0.20)
Homogeneity	2.59 (1)	.122	-0.01 (0.01)		
Ethnicity	12.34 (1)	.002	1.15 (0.33)	*Not White*	0.55 (0.26)
				White	1.70 (0.27)
Sexual orientation	5.25 (1)	.032	1.46 (0.75)	*Heterosexual*	1.51 (0.35)
				Not heterosexual	0.74 (0.14)
Human capital	0.16 (1)	.695	-0.13 (0.15)		
Male ties	1.91 (1)	.182	0.02 (0.01)		
Strong ties	13.46 (1)	.001	-0.02 (0.01)		
Gender x male ties	13.11 (1)	.002	-0.8 (.021)		
Gender x strong ties	0.71 (1)	.409	-0.02 (.023)		
Gender x sexual orientation	1.56 (1)	.225	-1.38 (1.10)	*Male, heterosexual*	0.70 (0.22)
				Male, not heterosexual	0.78 (0.51)
				Female, heterosexual	0.79 (0.20)
				Female, not heterosexual	2.24 (0.76)
Gender x education	0.31 (1)	.582	0.24 (0.43)	*Male, no degree*	0.86 (0.24)
				Female, no degree	1.51 (0.41)
				Male, degree	0.61 (0.42)
				Female, degree	1.51 (0.45)
Sex x homogeneity	5.67 (1)	.027	0.05 (.019)		
Sex x human capital	0.03 (1)	.869	0.07 (0.41)		
Experience	4.29 (1)	.051	-0.63 (0.30)	*Previous firm*	0.81 (0.30)
				No previous firm	1.44 (0.20)
Firm Age^2	8.58 (1)	.008	-6.142E-6 (2.097E-6)		
Age^2	5.08 (1)	.035	0.00 (0.00)		
Highest education	0.36 (1)	.556	0.02 (0.28)	*No degree*	1.19 (0.19)
				Degree	1.06 (0.27)
Corrected model	11.71 (18)	.000			
Intercept	0.17 (1)	.681	-0.44 (0.62)		

Notes: R^2= .91 (Adjusted R^2= -.83). Estimated marginal means were calculated from a GLM model using covariates at the following values: Age^2= 2039.45(Age=45.16), Firm age^2= 43924.38 (Firm age=209.58 months), homogeneity=60.02, male ties=63.31 strong ties=54.97, human capital= 1.33

TABLE 6.37 ANALYSIS OF COVARIANCE ON EXPERIENCE OF DISCRIMINATION, MALE-DOMINATED INDUSTRIES

Covariate	*F (df)*	*p*	Beta (*SE*)	Estimated marginal means (*SE*)	
Gender	19.26 (1)	.000	-2.63(0.58)	*Male*	0.25 (0.45)
				Female	2.95 (0.37)
Marital status	16.87 (1)	.000	-1.21 (0.30)	*Unmarried*	0.99 (0.31)
				Married	2.20 (0.33)
Homogeneity	1.65 (1)	.203	-.011 (0.01)		
Ethnicity	1.25 (1)	.267	0.32 (0.28)	*Not White*	1.44 (0.32)
				White	1.76 (0.32)
Sexual orientation	0.45 (1)	.506	0.78 (0.04)	*Heterosexual*	1.41 (0.27)
				Not heterosexual	1.79 (0.50)
Human capital	0.02 (1)	.879	-.051 (0.17)		
Male ties	0.21 (1)	.647	-0.00 (0.01)		
Strong ties	4.93 (1)	.029	-0.03 (0.01)		
Sex x male ties	0.02 (1)	.887	-0.00 (.017)		
Sex x strong ties	1.92 (1)	.171	0.03 (0.02)		
Sex x sexual orientation	0.46 (1)	.498	-0.80 (1.17)	*Male, heterosexual*	0.26 (0.37)
				Male, not heterosexual	0.24 (0.93)
				Female, heterosexual	2.56 (0.38)
				Female, not heterosexual	3.34 (0.45)
Sex x education	0.72 (1)	.398	0.52 (0.61)	*Male, no degree*	0.63 (0.48)
				Female, no degree	3.07 (0.48)
				Male, degree	-0.13 (0.51)
				Female, degree	2.83 (0.40)
Sex x homogeneity	0.04 (1)	.846	-0.00 (0.02)		
Sex x human capital	0.29 (1)	.592	0.14 (0.26)		
Experience	1.14 (1)	.290	0.28 (0.26)	*Previous firm*	1.74 (0.30)
				No previous firm	1.46 (0.33)
Firm Age^2	0.01 (1)	.913	-6.124E-7 (5.584E-6)		
Age^2	6.09 (1)	0.02	0.00 (0.00)		
Highest education	2.23 (1)	0.14	0.24 (0.50)	*No degree*	1.85 (0.34)
				Degree	1.35 (0.31)
Corrected model	9.54 (18)	0.00			
Intercept	28.80 (1)	0.00	4.06 (0.69)		

Notes: R^2= .70 (Adjusted R^2= .63). Estimated marginal means were calculated from a GLM model using covariates at the following values: Age^2= 1968.44(Age=44.37), Firm age^2= 28099.29 (Firm age=167.63 months), homogeneity=62.77, male ties=67.00 strong ties=55.44, human capital= 1.65

6.7 Resource Providers

Strength of resource providers: Sex analyses

I begin, as before with basic sex comparisons. Aggregated across sectors, women acquired 62.65 percent (*SE*=1.77) of resources from strong ties, compared to just 42.62 percent (*SE*=1.54) for men. The difference is statistically significant, *U*=2419.00, *z*=-7.43, *p*<.001. For owners of firms in the female-dominated industry, the proportion of resources sourced from strong ties is also greater for women *(M*=60.34, *SE*=2.94) than for men *(M*=44.52, *SE*=3.26), *U*=255.00, *z*=-2.88, *p*<.01. In the integrated industry, women *(M*=51.92, *SE*=2.69) drew on strong ties more than did men *(M*=44.48, *SE*=2.45), but the difference does not reach statistical significance, *U*=253.00, *z*=-1.65, *p*=.098. In the male-dominated sectors, women *(M*=70.86, *SE*=2.62) also used more strong ties for resources than men did *(M*=40.83, *SE*=2.24), *U*=288.00, *z*=-6.83, *p*<.001. These results are summarized in table 6.38.

TABLE 6.38 SEX DIFFERENCES IN MEAN USE OF STRONG TIES FOR RESOURCES

Group (n)	***Women***	***Men***	***U***	***z***	***p***
All (*216*)	62.65	42.62	2419.00	-7.43	.000**
	(1.77)	(1.54)			
Female-dominated Sector (*60*)	60.34	44.52	255.00	-2.88	.004*
	(2.94)	(3.26)			
Male-dominated Sectors (*103*)	70.86	40.83	288.00	-6.83	.000**
	(2.62)	(2.24)			
Integrated Sector (*53*)	51.92	44.48	253.00	-1.65	.098
	(2.69)	(2.45)			
Traditional Sectors (*86*)	60.34	40.83	357.00	-4.46	.000**
	(2.94)	(2.24)			
Nontraditional Sectors (*77*)	70.86	44.52	193.00	-5.30	.000**
	(2.62)	(3.26)			

Notes: standard errors are in parentheses below means

Looking only at owners based in sectors traditional for their sex, I also observe sex differences. Women *(M*=60.34, *SE*= 2.94) sought and acquired a significantly greater proportion of their business resources from strong ties

than men *(M*=40.83, *SE*=2.24), *U*=357.00, *z*=-4.46, *p*<.001. There are also significant sex differences when the sample is restricted to those in nontraditional industries (women: *M*=70.86, *SE*=2.62; Men: *M*=44.52, *SE*=3.26), *U*= 193.00, *z*=-5.30, *p*<.001.

Strength of resource providers: Sector analyses

For the full sample, sex-domination of sector does not significantly affect use of strong ties, *H*(3)=2.23, *p*=.329. There are, however differences among the three groups of women owners, *H*(2)=23.09, *p*<.001. Women in female-dominated sectors do not use significantly more strong ties than women in the integrated sector (*U*=32.66, *p*=.045), but women in the male-dominated sector do use more strong ties than women in the integrated sector (*U*=274.00, *p*<.001). Additionally, women in the male-dominated sectors use more strong ties than women in the female-dominated sector, *U*=464.00, *p*<.01. Hypothesis 6 is supported.

Sex-domination of sector has no effect on use of strong ties for men owners, *H*(2)=3.18, *p*=.204. On average and regardless of sex, business owners that operate firms in industries that are not traditional for their sex obtained a greater proportion of business resources from strong ties *(M*=60.94, *SE*=2.50) than business owners that operate firms in sex typical sectors *(M*=47.86, *SE*=2.04), *U*=2061.00, *z*=-4.16, *p*<.001.

TABLE 6.39 PROPORTION OF RESOURCES ACQUIRED FROM STRONG TIES, BY SEX AND SECTOR

Group (n)	Min	Max	Mean	SD
All (216)	15.79	100	52.73	19.91
Female-dominated Sector (60)	16.67	84.21	52.69	18.59
Sex-integrated Sector (53)	16.67	72.22	48.69	13.89
Male-dominated Sectors (103)	15.79	100	54.83	22.90
Females (109)	25.00	100	62.65	18.42
Female-dominated Sector (31)	25.00	84.21	60.34	16.36
Sex-integrated Sector (30)	29.41	72.22	51.92	14.72

Male-dominated Sectors (48)	35.71	100	70.86	18.15
Males (107)	15.79	78.57	42.62	15.93
Female-dominated Sector (29)	16.67	78.57	44.52	17.53
Sex-integrated Sector (23)	16.67	64.29	44.48	11.74
Male-dominated Sectors (55)	15.79	77.78	40.83	16.61

Sex of resource providers: Sex analyses

Overall, owners obtained 58.30 percent of resources from male ties, and 41.70 percent from female ties. The first comparison of means revealed sex differences in the appropriation of resources from male ties (table 6.40). Women *(M*=46.31, *SE*=2.57) obtained significantly fewer resources from male ties than did men owners *(M*=70.72, *SE*=2.20), *U*=3019.00, *z*=-6.42, *p*<.001. In the female-dominated sector, women *(M*=30.45, *SE*=4.03) obtained a smaller proportion of resources from male ties than men owners did *(M*=45.92, *SE*=4.39), *U*=309.50, *z*=-2.09, *p*<.05. In the integrated sector, women used men for resources about half of the time *(M*=51.48, *SE*=3.31); men acquired resources from other men on more than three-quarters of occasions *(M*=78.03, *SE*=1.91) – the difference was statistically significant, *U*=68.50, *z*=-4.97, *p*<.001. And, for the male-dominated sectors, there are similarly large sex differences in the use of male ties for resources (Women: *M*=53.04, *SE*=4.30, Men: *M*=80.20, *SE*=2.17), which are also significant, *U*=674.00, *z*=-4.69, *p*<.001.

TABLE 6.40 SEX DIFFERENCES IN USE OF MALE TIES

Group (n)	***Women***	***Men***	***U***	***z***	***p***
All (220)	46.31	70.72	3019.00	-6.42	.000***
	(2.57)	(2.20)			
Female-dominated Sector (60)	30.45	80.20	309.50	-2.09	.037*
	(4.03)	(2.17)			
Male-dominated Sectors (107)	53.04	45.92	674.00	-4.69	.000***
	(4.30)	(4.39)			
Integrated Sector (53)	51.48	78.03	68.50	-4.97	.000***

	(3.31)	(1.91)			
Traditional Sectors (88)	53.04	45.92	99.50	-6.86	.000***
	(4.30)	(4.39)			
Nontraditional Sectors (79)	30.45	80.20	634.00	-0.93	.353
	(4.03)	(2.17)			

Looking just at those operating firms in sex typical sectors, very large differences between the sexes are observed. Traditional women obtained just 30.45 percent (*SE*=4.03) of resources from men; traditional men obtained 80.20 percent (*SE*=2.17) of resources from other men, *U*=99.50, *z*=-6.86, *p*<.001. For owners of nontraditional firms, women and men did not differ in the extent to which they appropriated resources from male ties. On average, nontraditional women obtained 53.04 percent (*SE*=4.30) of resources from men; men owners actually obtained slightly fewer resources from men *(M*=45.92, *SE*=4.39) but the difference was not statistically significant, *U*=634.00, *z*=-.93, *p*=.353.

Sex of resource providers: Sector analyses

Analysis on the full sample shows that sex-domination of sector significantly affects the proportion of resources owners acquired from male ties, *H*(2)=44.21, *p*<.001. Follow-up Mann-Whitney tests reveal that owning a firm in the female-dominated sector significantly reduces the proportion of resources obtained from male ties compared to owning a firm in the integrated (*U*=746.00, *p*<.001) or the male-dominated sectors (*U*=1332.50, *p*<.001). Looking at the female respondents only, sex-domination of sector significantly affects proportion of resources obtained from male ties, *H*(2)=13.52, *p*<.001. Owning a firm in the female-dominated sector reduces the proportion of resources obtained from male ties compared to owning a firm in the sex-integrated industry, *U*=249.00, *p*<.01. Moreover, owning a firm in the male-dominated industries significantly increases the proportion of resources obtained from male ties compared to owning a business in the female-dominated industry, *U*=432.00, *p*<.001.

Turning to the male owners, results indicate that sex-domination of sector does affect the proportion of resources obtained from male ties, $H(2)=40.27$, $p<.001$. For men, owning a firm in the female-dominated sector significantly reduces the proportion of resources obtained from male ties, compared to owning a firm in the sex-integrated sector ($U=86.00$, $p<.001$) or the male-dominated sectors ($U=167.00$, $p<.001$). No difference in the proportion of resources obtained from male contacts for men in the integrated and male-dominated industries are observed, $U=513.50$, $p=.130$. Comparing traditional and nontraditional owners reveals that owners of nontraditional firms *(M*=50.42, *SE*=3.17) obtained a significantly smaller proportion of resources from male ties than owners of traditional firms *(M*=62.68, *SE*=3.23), $U=2548.50$, $z=-2.98$, $p<.01$.

TABLE 6.41 PROPORTION OF RESOURCES ACQUIRED FROM MALE TIES

Group (*n*)	Min	Max	Mean	SD
All (*220*)	0	100	58.36	27.85
Female-dominated Sector (*60*)	0	88.24	37.93	24.13
Sex-integrated Sector (*53*)	0	100	63.00	19.88
Male-dominated Sectors (*107*)	0	100	67.51	27.45
Females (*111*)	0	100	46.31	27.09
Female-dominated Sector (*31*)	0	100	30.45	22.44
Sex-integrated Sector (*30*)	18.18	84.21	51.48	18.14
Male-dominated Sectors (*50*)	0	100	53.04	30.37
Males (*109*)	7.69	100	70.62	22.91
Female-dominated Sector (*29*)	7.69	88.24	45.92	23.65
Sex-integrated Sector (*23*)	64.29	100	78.03	9.14
Male-dominated Sectors (*57*)	44.44	100	80.20	16.37

Use of kin: Sex analyses

On average, women obtained 21.14 percent (*SE*=1.36) of their resources from their spouse/partner or other family members; men obtained 14.96 percent

(*SE*=0.96) of their resources from kin and the differences was statistically significant, *U*=4838.00, *z*=-3.33, *p*<.001. Hypothesis 7a is supported. For owners in the female-dominated industry, the proportions of resources obtained from kin are statistically similar (Women: *M*=21.01, *SE*=2.45; Men: *M*=15.06, *SE*=1.80), *U*=342.50, *z*=-1.59, *p*=.113. For owners in the integrated industry, women *(M*=23.08, *SE*=2.10) obtained a greater proportion of resources from kin than men *(M*=17.36, *SE*=2.84) did, but this difference is insignificant in statistical terms, *U*=296.00, *z*=-1.74, *p*=.081. There are sex differences in the use of kin for resources among owners in the male-dominated sectors. Women *(M*=20.06, *SE*=2.29) obtained one-fifth of their resources from family and spouse; men *(M*=13.85, *SE*=1.03) obtained less than 14 percent of resources from kin, but the difference is just shy of statistical significance, *U*=1205.00, *z*=-1.90, *p*=.057.

TABLE 6.42 SEX DIFFERENCES IN USE OF KIN FOR RESOURCES

Group (n)	*Women*	*Men*	*U*	*z*	*p*
All (228)	21.14	14.96	4838.00	-3.33	.001***
	(1.36)	(0.96)			
Female-dominated Sector (60)	21.01	15.06	342.50	-1.59	.113
	(2.45)	(1.80)			
Male-dominated Sectors (111)	20.06	13.85	1205.00	-1.90	.057
	(2.29)	(1.03)			
Integrated Sector (57)	23.08	17.36	296.00	-1.74	.081
	(2.10)	(2.84)			
Traditional Sectors (92)	21.01	13.85	634.50	-2.57	.010**
	(2.45)	(1.03)			
Nontraditional Sectors (79)	20.06	15.06	616.00	-1.11	.266
	(2.29)	(1.80)			

In gender typical industries, women *(M*=21.01, *SE*=2.45) used significantly more kin than men did *(M*=13.85, *SE*=1.03), *U*=634.50, *z*=-2.57, *p*<.01. In atypical industries, women *(M*=20.06, *SE*=2.29) also used more kin than men

did (*M*=15.06, *SE*=1.80), but this difference does not reach significance *U*=616.00, *z*=-1.11, *p*=.266.

Use of kin: Sector analyses

No significant differences are observed between owners in male-dominated, female-dominated and sex-integrated sectors with regard to the proportion of resources obtained from kin, *H*(2)=3.56, *p*=.169. After the sample is restricted to female owners, no significant differences are detected, *H*(2)=1.24, *p*=.538. Sector congruency appears unassociated with proportion of resources obtained from kin for women owners. There are also no significant differences between the three subsamples of male owners, *H*(2)=0.39, *p*=.823. Sector congruency is unassociated with proportion of resources obtained from kin, so hypothesis 7b is not supported.

TABLE 6.43: PROPORTION OF RESOURCES OBTAINED FROM KIN

Group (n)	Min	Max	Mean	SD
All (228)	0	62.50	17.97	12.77
Female-dominated Sector (60)	0	53.33	18.13	12.18
Sex-integrated Sector (57)	0	53.33	20.37	13.36
Male-dominated Sectors (111)	0	62.50	16.65	12.71
Females (111)	0	62.50	21.14	14.28
Female-dominated Sector (31)	0	53.33	21.01	13.63
Sex-integrated Sector (30)	5.26	53.33	23.08	11.52
Male-dominated Sectors (50)	0	62.50	20.06	16.17
Males (117)	0	42.11	14.96	10.36
Female-dominated Sector (29)	0	35.71	15.06	9.71
Sex-integrated Sector (27)	0	42.11	17.36	14.77
Male-dominated Sectors (61)	0	35.29	13.85	8.05

Summary of findings relating to resource provision

To summarize this section, the analysis seems to indicate that sex composition of business sector does matter when it comes to acquiring resources. Men business owners generally acquire resources from weak ties, while women acquire resources from strong ties. Women operating firms in

the male-dominated industries are particularly reliant on strong ties. In general, women obtained fewer resources from male contacts than did men, but women running firms in the integrated and male-dominated industries were particularly reliant on men for resources. In contrast, men relied on other men to provide resources except where they operated in the female-dominated industry. Finally, kin were generally unpopular as resource providers; women used kin to a greater extent than men, but this was unaffected by the sex composition of operating sector.

Human capital and network composition

Hypothesis 8a stated that nontraditional women that have a male-typed or gender neutral education have networks that are more heterogeneous than nontraditional women that have a female-typed education. Of the 56 nontraditional female entrepreneurs in the sample, only 34 indicated that they held at least an undergraduate degree *and* the name of their major. The gender type of degree major was coded as 'male-dominated', 'female-dominated' or 'neutral' by comparing the sex composition of undergraduate degrees in 2008 (National Center for Education Statistics 2009) (see appendix 4). 22 respondents (64.7 percent of this subsample) held a degree in a male-typed subject such as electronic engineering, or audio engineering. 7 respondents held a degree in a female-typed subject such as the liberal arts and 5 respondents held a degree in a neutral subject such as English language – these subsamples were added together. The means, ranges and standard deviations of network homogeneity, by gender type of degree and previous industry experience are shown in table 6.44. The Mann Whitney test showed that women with male or neutral typed educational backgrounds *(M*=39.20, *SE*=4.09) and those with a female-typed degree *(M*=37.14, *SE*=7.39) have networks that are equally heterogeneous, *U*=88.50, *z*=-.26, *p*=.798. Hypothesis 8a is unsupported.

Hypothesis 8b stated that nontraditional women that have previous experience in the industry have networks that are more heterogeneous than

nontraditional women with no industry experience. Respondents could indicate industry experience in up to 6 areas: as a student, during unpaid work experience, as part of a hobby, as an employee, as a business owner or 'other'. Of the 56 nontraditional female entrepreneurs in the sample, just 8 (14.3 percent) had no previous experience in the industry. In a Mann-Whitney test, the difference between the mean network homogeneity of nontraditional women with no previous industry experience *(M*=32.27, *SE*=6.40) and that of women with experience *(M*=43.27, *SE*=3.41) was insignificant, *U*=146.00, *z*=-1.08, *p*=.281. In fact, contrary to expectations, the mean network homogeneity of nontraditional women with no previous industry experience was *lower* than the network homogeneity of those who had had previous experience in this male-dominated industry. Hypothesis 8b is not supported.

TABLE 6.44 MEANS, RANGES AND STANDARD DEVIATIONS OF NETWORK HOMOGENEITY, NONTRADITIONAL WOMEN, BY GENDER TYPE OF DEGREE AND PREVIOUS INDUSTRY EXPERIENCE

Group (*n*)	Min	Max	Mean	SD
Gender type of degree (34)				
Male-typed or neutral degree (27)	8.33	85.71	39.20	21.27
Female-typed degree (7)	13.64	63.64	37.14	19.55
Previous experience (56)				
Some experience (48)	8.33	85.71	43.27	23.63
No experience (8)	13.64	52.50	32.27	18.11

Resource acquisition: Regression analysis

The previous analyses showed that men are rather successful in obtaining resources, regardless of whether they are based in a sector that is traditional or not traditional for their sex. Therefore, in the final part of the analysis, a series of blocked hierarchical multiple regressions are performed to identify the predictors of resource acquisition for women owners only. The criterion variable in each case is the proportion of resources successfully extracted from the network. In order to ease interpretability of results, separate regressions are conducted for owners in the male-dominated, integrated and

female-dominated sectors. However, splitting the sample in this way significantly restricts the number of independent variables that can be entered into the model (Field, 2009). The variables that were selected for entry into the regression analyses were those that formed the basis of the hypotheses (the network and human capital variables), as well as variables representing membership of voluntary organisations as previous research has demonstrated links between these and resource acquisition (McPherson and Smith-Lovin 1986; Popielarz 1992, 1999; Davis and Aldrich 2000; Rotolo and Wharton 2003; Miller et al. 2006/7). A stepwise procedure was followed in which variables are included in the equation in the order in which they maximize the statistically significant contribution to the model. The stepwise method was selected because it has proven to be a useful technique in exploratory regression analysis (Draper and Smith 1981). The results of the regression analyses are summarized in tables 6.45-6.47 (bivariate correlations are reported in appendix 6).

For women owners in the female-dominated sector (table 6.45) the first two regression models includes only the control and resource provider variables, none of which are found to be significant. When the network measures are entered in model 3, the dummy variable representing a mixed-sex networking strategy (compared to a homogeneous network) significantly reduces women owners' ability to successfully mobilize resources. The influence of a heterogeneous networking strategy on resource mobilization is not significant. But together, the network variables explain 26 percent of the variance in resource acquisition for these women. Once the variables representing membership of voluntary associations[25] are entered in model 4, the effect of a mixed-sex network on resource mobilization becomes more pronounced. In the final model, which introduces the discrimination variable, the disadvantage of both a mixed-sex and heterogeneous networking strategy over a homogeneous networking strategy soar. Membership of a professional or

[25] The variables representing membership of a trade organization was dropped from this analysis because of multicollinearity.

social organization slightly reduces resource acquisition, and, curiously reports of discrimination actually *increase* resource acquisition.

For women in the integrated industry (table 6.46), model 1 includes only the control variables, and together these account for 48 percent of the variance in resource acquisition. Only one variable is significant; human capital has a small, positive influence on resource acquisition. The influence of human capital on resource acquisition shrinks somewhat across models 2 and 3 when the network and resource provider measures are entered into the model. The effect completely disappears when the voluntary association variables are introduced in model 4; no other variables are found to be significant at this point. While the final model is significant ($F(11,22) = 3.76$, with the effects of other variables held constant, no one variable has a significant influence on resource acquisition.

The results for women owners in the male-dominated industries are displayed in table 6.47. The first regression model includes all of the control variables; none are found to be significant and together they account for just 6 percent of the variance in resource acquisition. In model 2, when the variables representing resource providers are entered into the model, prior experience in running a firm has a moderate, positive impact on resource acquisition. Male ties also has a positive influence, but this is small; the effect of strong ties is in the opposite direction. Model 3 introduces the network measures. The influence of strong and male ties changes marginally; whereas the influence of prior experience increases somewhat. Additionally, and in support of hypothesis 4a, following a mixed networking strategy is found to have a moderate and positive impact on women's ability to successfully obtain business resources. The inclusion of the voluntary association variables (model 4) leads human capital to have a negative effect on resource acquisition. All of these effects are sustained in the final model. This shows that, contrary to hypothesis 8d, higher levels of human capital actually reduce the success of nontraditional women in obtaining resources. In fact, for every

additional source of prior experience in the industry, women's success in obtaining resources falls by 6.6 percent. It is interesting that having run any other business (not necessarily in the same industry) has the opposite effect on women's success in securing resources. Obtaining a greater proportion of resources from male ties is associated with slightly better resource acquisition; in contrast, resources secured increases as use of strong ties falls. The final model shows that, net of respondent characteristics, pursuing a mixed sex network has a greater effect on the ability to secure resources than either a homogeneous or heterogenous networking strategy.

TABLE 6.45: HIERARCHICAL MULTIPLE REGRESSION ON RESOURCE ACQUISITION, WOMEN, FEMALE-DOMINATED SECTORS

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β
Constant	94.56***	6.79		88.48***	9.51		91.98***	9.01		127.97**	27.36		315.42	74.20	
Firm age^2	0.00	0.00	-0.25	0.00	0.00	-0.28	0.00	0.00	-0.29	-5.012E-5	0.00	-0.09	0.00	0.00	-0.41
Human capital	-1.79	3.34	-0.13	-6.36	4.69	-0.39	-0.58	4.67	-0.04	0.77	4.78	0.06	10.61	5.26	0.77
Experience	3.50	3.55	0.24	4.40	3.88	0.30	1.32	3.70	0.09	6.88	5.50	0.47	19.58	6.44	1.35
Strong ties				0.18	0.17	0.35	0.06	0.17	0.13	0.16	0.19	0.32	0.03	0.15	0.05
Male ties				-0.06	0.08	-0.18	0.20	0.15	0.65	-0.11	0.28	-0.35	-2.08	0.78	-6.79
Mixed network							-14.10*	6.05	-0.94	-22.30*	8.83	-1.48	-38.48**	9.19	-2.56
Heterophilious network							-13.27	11.54	-0.43	-30.79	17.96	-0.98	-142.23*	44.50	-4.54
Professional										-0.31	0.24	-1.03	-1.65*	0.55	-5.58
Social										-0.24	0.20	-0.76	-0.90*	0.29	-2.84
Discrimination													35.70*	13.54	4.16
F	0.69			0.76			1.48			1.36			2.73		
R^2	.12			.23			.49			.58			.77		
ΔR^2	.12			.10			.26			.09			.20		
Adjusted R^2	-.05			.07			.16			.15			.49		

Notes: n=19. *p<.05, ** p<.01 ***p<.001

TABLE 6.46: HIERARCHICAL MULTIPLE REGRESSION ON RESOURCE ACQUISITION, WOMEN, INTEGRATED SECTOR

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β
Constant	84.22***	9.30		75.62***	11.44		72.39***	14.81		106.23**	32.36		185.98*	64.53	
Firm age2	2.513E-5	0.00	0.18	8.577E-6	0.00	0.06	2.049d-5	0.00	0.15	-1.354E-5	0.00	-0.10	-5.687E-5	0.00	-0.42
Human capital	5.05***	1.21	0.71	4.08**	1.13	0.57	3.775*	1.31	0.53	1.99	1.60	0.28	3.53	1.89	0.49
Experience	0.70	4.77	0.03	1.66	4.65	0.06	0.95	5.01	0.03	-2.67	5.94	-0.09	-16.67	11.45	-0.59
Strong ties				-0.00	0.15	-0.01	-0.10	0.17	-0.18	-0.17	0.22	-0.30	-0.22	0.21	-0.40
Male ties				0.18	0.08	0.43	0.25	0.12	0.61	0.29	0.18	0.71	0.39	0.19	0.95
Mixed network							5.76	6.2	0.24	-8.28	13.10	-0.35	-45.26	29.08	-1.90
Heterophilious network							8.54	8.183	0.22	-9.20	16.78	-0.23	-75.64	49.78	-1.93
Trade										0.29	0.26	0.77	0.55	0.31	1.45
Professional										-0.52	0.31	-1.41	-1.43	0.71	-3.86
Social										0.00	0.08	0.00	-0.10	0.11	-0.40
Discrimination													9.28	6.58	1.10
F	5.88**			5.91**			4.25**			3.63*			3.76*		
R^2	.48			.64			.67			.75			.79		
ΔR^2	.48			.15			.03			.09			.04		
Adjusted R^2	.40			.53			.51			.55			.58		

Notes: n=23 *p<.05, ** p<.01 ***p<.001

TABLE 6.47: HIERARCHICAL MULTIPLE REGRESSION ON RESOURCE ACQUISITION, WOMEN, MALE-DOMINATED SECTORS

Variables	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β
Constant	64.95***	12.09		64.39***	13.13		35.94*	16.55		36.34	25.86		41.47	30.13	
Firm age^2	0.00	0.00	0.18	-3.416E-5	0.00	-0.03	-8.698E-5	0.00	-0.07	0.00	0.00	-0.11	0.00	0.00	-0.11
Human capital	-3.55	3.59	-0.15	-2.23	2.56	-0.10	-5.28	2.63	-0.23	-6.05*	2.92	-0.26	-6.34*	3.07	-0.27
Experience	3.53	8.12	0.07	17.92**	6.53	0.35	24.98***	6.71	0.49	25.23***	6.92	0.49	24.78***	7.13	0.48
Strong ties				-0.55**	0.17	-0.42	-0.37*	0.18	-0.28	-0.47*	0.21	-0.36	-0.49*	0.22	-0.37
Male ties				0.45***	0.09	0.56	0.54***	0.10	0.67	0.54***	0.10	0.68	0.54***	0.10	0.68
Mixed network							17.76*	8.36	0.37	23.57*	11.08	0.49	24.71*	11.70	0.51
Heterogenous network							-1.16	8.38	-0.02	6.60	14.07	0.13	6.17	14.31	0.12
Trade										0.18	0.16	0.25	0.18	0.16	0.25
Professional										-0.02	0.18	-0.02	-0.00	0.19	-0.00
Social										-0.05	0.23	-0.07	-0.09	0.26	-0.11
Discrimination													-0.08	2.18	-0.05
F	0.85			9.42***			8.92***			6.18***			5.48***		
R^2	0.06			0.55			0.63			0.65			0.65		
ΔR^2	0.06			0.49			0.08			0.02			0.00		
Adjusted R^2	-0.01			0.50			0.56			0.55			0.53		

Notes: n=44.*p<.05, ** p<.01 ***p<.001

TABLE 6.48 SUMMARY OF FINDINGS

H1a	Non-traditional women owners suffer greater levels of perceived discrimination than traditional woman owners	**Supported**
H1b	There are no differences in the levels of perceived discrimination suffered by nontraditional men owners and traditional men owners	**Unsupported**
H2a	Women owners of firms in male-dominated sectors experience greater perceived discrimination from financiers than women owners of firms in female-dominated sectors	**Supported**
H2b	There is no difference in the level of perceived discrimination from financiers experienced by men owners of firms in male-dominated sectors and men owners of firms in female-dominated sectors.	**Unsupported**
H2c	Women owners of firms in male-dominated sectors experience greater difficulty in obtaining external finance than women owners of firms in female-dominated sectors	**Supported**
H2d	There is no difference in men owners' of firms in male-dominated sectors and men owners' of firms in female-dominated sectors ability to obtain external finance.	**Unsupported**
H3a	Aggregated across sectors, men owners have networks that significantly more homogeneous than those of women owners	**Supported**
H3b	Women owners in female-dominated industries have networks that are significantly more homogeneous, compared to women owners in male-dominated industries.	**Supported**
H3c	There is no difference in the homogeneity of the networks of men owners in female-dominated, integrated and male-dominated industries	**Unsupported**
H4a	Nontraditional women owners that have female-dominated social networks acquire a lower volume of resources than nontraditional women owners with mixed-sex networks.	**Unsupported**
H5	Nontraditional women owners that have male-dominated social networks experience greater perceived discrimination than nontraditional women owners with female-dominated or mixed-sex networks	**Unsupported**
H6	Women in male-dominated industries obtain a greater proportion of resources from strong ties than women in female dominated industries	**Supported**
H7a	In the aggregate, women business owners obtain a greater proportion of resources from kin than men business owners	**Supported**
H7b	Women owners in male-dominated sectors obtain a greater proportion of resources from kin than women business owners in female-dominated business sectors.	**Unsupported**
H8a	Nontraditional women that have a male-typed or neutral education have networks that are more heterogeneous than nontraditional women that have a female-typed education	**Unsupported**
H8b	Nontraditional women that have previous experience in the	**Unsupported**

	industry have networks that are more heterogeneous than nontraditional women that have no experience in the industry	
H8c	Nontraditional women that have previous experience in the industry perceive less discrimination than nontraditional women with less relevant experience	**Unsupported**
H8d	Nontraditional women that have previous experience in the industry are more successful in obtaining resources than nontraditional women with less relevant experience.	**Unsupported**

CHAPTER SEVEN: Discussion of findings

"I don't know what I think until I hear what I say"
-attributed to E.M. Forster

7.1 Introduction

In this chapter, I summarize and discuss the main findings, noting where they support, or diverge from the stated hypotheses and referring to the literature surveyed in earlier chapters. The findings are myriad and complex; therefore, they are discussed in sections according to research objective. Before wrapping up, time is taken to address the contribution and implications of these findings for our theoretical understanding of entrepreneurial segregation and gender stereotyping in entrepreneurship.

7.2 Gender congruency, entrepreneurship and network composition

A considerable amount of research has been undertaken that compares and contrasts the social networks of men and women business owners. There is such a plethora of comparative research in this area that the findings are fairly non-contentious. Women and men tend to claim social networks of a similar size and they expend similar amounts of time maintaining and developing contacts (Greve and Salaff 2003). However, there is a higher incidence of women in women entrepreneurs' networks (Renzulli et al. 2000; Klyver and Terjesen 2007) while men seem to be particularly recalcitrant to include women in their business relationships (Aldrich et al. 1997; Loscocco et al. 2009). Researchers have concluded that these morphological differences matter because different types of people – including the sexes – offer and exchange different types of network capital (Plickert, Côté and Wellman 2007). In the case of gender, women tend to offer emotional and affective resources, while men have better access to – and hence are in a better position to offer instrumental support. Furthermore, it has been conjectured that, in male-dominated fields, relying on same-sex networks for leads and

information denies women access to the privileged resources held by men in the industry. The resources, information, knowledge and expertise or *social capital* held by men operating in these fields is likely to be of a better quality due to their longer establishment and better-entrenched positions in network hierarchies (Godwin et al. 2005). In Bourdieuian theory, social capital should be thought of as an asset that has the ability to inflate a business owners' stock of the other forms of capital – economic, symbolic and cultural. Thus the partitioning of women and men's networks could reproduce gender equalities that stem from intersections between the sexes, and is likely to be particularly restrictive for women and men operating businesses in highly segregated industries.

It is thus almost an accepted wisdom in the literature that men represent a significant resource for both men and women business owners. Theory suggests that because of their longer, stronger and deeper connections to the labour market, men occupy more powerful positions within business hierarchies than women, and thus represent significant resources for both women and men when present in their social networks (Renzulli and Aldrich 2005). But empirical studies of sex and social networks have rarely controlled for sex composition of business sector before reaching such conclusions. Accordingly, the first objective of this study was to 'describe, compare and contrast the network characteristics of male and female business owners in gender typical and atypical sectors', while the second objective was to 'identify whether the networks of gender congruent and incongruent business owners differ, and in what ways'. In support of the extant literature, this study did find that, on the whole, women's networks are significantly less sex homogeneous than those of men. In this study, the average woman business owner's network was comprised of 53 per cent women, and 47 per cent men – in other words, women tended to network fairly equally with both sexes. In contrast, the average man tended to nominate a network that was comprised of around two thirds men, and one-third women. Generally, this difference was found in both external and internal networks and in a variety of relationships. For

instance, the Boards of Directors of firms owned by men were on average 82 per cent male, while women-owned Boards were on average 62 per cent female. And in support of the previous research on the segregative effects of men's voluntary associations (McPherson and Smith-Lovin 1986, 1987; Popielarz 1999), while women belonged to fairly mixed trade associations, men belonged to trade associations that were on average two-thirds male. These observations suggest that overall, women business owners network across sex lines to a greater degree than men business owners. On the face of it, this would appear to be good news for women entrepreneurs: plenty of research has linked heterogeneous networks to the ability to procure a wider range of resources (Carter et al. 2003). However, as discussed later, in this sample, women's diverse networks do not appear to be translating into greater, or more diverse resource acquisition.

The current study found that, irrespective of sex, owners in gender typical industries had networks that were significantly more homogeneous than owners in gender atypical industries. Women owners in the female-dominated sector associated with other women to a greater degree than women in the male-dominated or sex-integrated sectors. And, contrary to expectations, men owners in the female-dominated sector associated with women to a greater degree than men in the male-dominated or sex-integrated sectors. So, the degree to which owners network with members of the same or opposite sex seems linked to the sex composition of business ownership in an industry. Where men-owned firms are preponderant, as in the construction and sound recording industries, owners largely network with men. Where men-owned firms are relatively rare – as in the childcare industry – owners tend to network with other women. Where both women- and men-owned firms are present – as in the publishing industry – owners network with both men *and* women. These findings suggest that owners do not select network partners on the basis of their *own* sex; rather, business owners appear to be rational in that they construct 'functional' networks comprised largely of same-sex others in gender typical industries, and opposite-sex others in gender atypical sectors;

those owners that restrict their networking activities to members of the same sex in sectors where they do not predominate may calculate that they are likely to extract fewer resources from their networks than those owners that engage in cross-sex networking.

In general, however, network homogeneity did not predict the sex of resource providers. In methodological terms, this is an important finding because network researchers rarely collect data on actual resource providers; commonly, studies rely on named ties (that is social networks) as a proxy. If the sex of ties and providers are uncorrelated, studies that have concluded that women are at an advantage or a disadvantage because of the sex composition of their networks may be inappropriate. This finding highlights the importance of collecting data on actual resources exchanged among network members, rather than network members themselves. It also highlights the importance of differentiating between *social networks* and *social capital*. This is discussed further in the section that follows.

7.3 Resource acquisition and network composition

The third objective of the research was 'to identify the links between network composition and resource acquisition and the ways in which these differ for gender congruent and incongruent men and women business owners'. The aim here was to bring together social network and social capital theory to explain the segregation of men and women business owners through the inability to secure resources for certain types of enterprise. Ambitions to start businesses may be widespread, but resources are not. Individuals may select ventures that fit with their motives, expectations and competencies, but if they are hindered in their pursuits by the inability to secure and retain the resources they need, they may find it difficult to realize their ambitions. Paradoxically, the results of this study suggest that the challenge women face in their attempts to land these resources may stem from the very networks they should be tapping into.

In this New York City based sample of business owners, the ability to mobilize resources appears to be strongly influenced by two factors: an interaction between the sex of the business owner and the gender-type of his or her firm, and the composition of the owners' social networks. On the face of it, resource acquisition appeared to be linked to sex of owner. A comparison of success in resource acquisition, displayed in table 6.32 showed that men were remarkably successful in their attempts to seek resources, securing over 96 percent of resources they sought, while the average woman entrepreneur in this sample acquired 82 percent of business resources. However, sex differences disappeared when controls were applied for sex domination of business sector: indeed, in the woman-dominated, female-typed childcare industry, women were just as successful as men in their attempts to secure resources. When women operated firms that were less traditional for their gender – construction and sound engineering, and even publishing firms - they suffered in terms of their ability to obtain resources. These women reported difficulties in obtaining the whole gamut of resources (informational, instrumental, brokerage and affective) – particularly loans or investment, advice on product or service development, assistance securing clients and contracts, access to role models and mentors, professional expertise and voluntary organization members with whom they could do business.

It seems, then that gender incongruency is a problem for nontraditional women looking to locate the support and assistance they require to sustain their firms. Although nontraditional men did indicate some problems in acquiring the resources they sought (for instance, 17.2 percent of male owners of childcare firms reporting difficulties in obtaining a loan, investment funds or other types of finance, while 20.7 percent were unable to locate coaching, mentoring or training), on the whole, nontraditional men successfully leveraged 94 per cent of the resources they sought. This is an interesting observation given that these men also reported relatively high levels of discrimination against them by staff, customers, suppliers and colleagues (figure 6.2).

Efforts were made to identify the possible causes of this inability by women nontraditional entrepreneurs to successfully mobilize resources from their social networks. Empirical investigations of women's networking activities are vast and growing (Aldrich et al. 1997; Davis and Aldrich 2000; Renzulli et al. 2000; Weiler and Bernasek 2001; Brush et al. 2004; Smith-Hunter and Boyd 2004; Miller et al. 2006/7; Klyver and Terjesen 2007; McGowan and Hampton 2007). Previous researchers have uncovered differing predilections between the sexes in terms of network composition. The literature review in chapter 3 revealed that while women and men generally have networks of similar sizes, there are sex differences in the morphological patterns of social networks. Women's networks are dominated by other women, kin and close friends, whereas men's networks are more apt to be composed of high status, male others that are likely to have a greater access to the financial, physical and human capital useful for enterprises in male-dominated sectors. These studies have concluded that women business owners are disadvantaged because of their exclusion from 'old boys' networks' and that many forge or join predominately exclusively female networks in an effort to combat this. Moreover, inappropriately composed social networks are readily blamed for women entrepreneurs' deficit in social capital, although very few researchers link network composition to resource acquisition, preferring instead to use social networks as a proxy measure for social capital. (Indeed, Garcia and Carter introduced their 2009 paper by claiming, "to our knowledge there is no previous empirical research on the content exchanged through business owners' networks and the role of gender" (Diaz-Garcia and Carter 2009: 227)).

Much is known about the morphological patterns of linkages between actors, but scholars have been slow to study the "actual or potential resources" available to an individual via his or her network of relationships (Bourdieu 1986: 248). In chapter 3, it was argued that this oversight is due to the definitional confusion prevalent throughout the extant literature. Although a

great deal of research has been conducted on the morphological traits of *social networks*, researchers have rarely directly measured the resources individuals are able to secure via their contacts, i.e. *social capital*. Rather, network characteristics usually serve as proxies for resource access. But these are measures of the *potential* rather than the *actual* flow of resources between interactants; a distinction rarely acknowledged by researchers in the pure SNA tradition. This is a crucial oversight since businesses are essentially constructed not from social networks *per se*, but from the resources leveraged from those networks. The inordinate attention paid to measuring and comparing structural network constructs (i.e. network size, density, centrality and strength-of-ties) may also account for some of the conflicting results derived from the research – for example, that both strong and weak ties are argued to be positively related to performance to the detriment of the other (the strength of weak ties vs. the strength of strong ties)(Elfring and Hulsnik 2001).

The overemphasis on the structural features of social networks has attracted criticism from commentators in the feminist and/or post-structuralist schools. Ahl (2008: 184), for example, has called social capital research and gender theory "uneasy companions". For her, the extant literature does not address the real issues relating to the ways in which gender influences the accessibility and appropriability of social capital; and ignores choice of business as a gendered process; rather, men's style of networking is viewed as the implicit norm from which women deviate in a manner that is not conducive to entrepreneurial success:

> "These studies…miss 'the social'. They do not address what actually happens in the interactions between an entrepreneur and her network contacts – in spite of the fact that this is where social capital is enacted, according to most social capital theorists. And the studies do not address how such interactions may be gendered, thus creating different conditions for men and women" (Ahl 2008: 179)

Relationships are characterized by affect and exchange. Thus, social networks should be measured in terms of subjective criteria (such as likeability, affective content or emotional importance) as well as the more objective measures of network structure (e.g. instrumental exchange) and more research is required to uncover these facets. Undoubtedly, subjective notions are linked to the gendered processes of interaction of which Ahl speaks, and in turn, these may impact upon the actual flow of resources between ties. For example, while the strength-of-weak ties is a convincing theory, weak ties are only useful if they are motivated to exchange resources (Suseno 2008), and it is this asymmetry problem that can raise challenges for nontraditional business owners. Network composition affects the ability of business owners to access resources, but gender stereotypes may play an important role in their ability to appropriate those resources. There is little worth in having extensive and well-constructed networks if resources cannot successfully be extracted from them.

In this study, the relationship between network composition and success in acquiring the resources useful for business was explicitly measured. Drawing on the conclusions of others (Aldrich et al. 1997; Davis and Aldrich 2000; Renzulli et al. 2000; Davis et al. 2006; Klyver and Terjesen 2007; McGowan and Hampton 2007), it was thought that entrepreneurial segregation could be explained by differences in the sex composition of men and women's social networks. Since connections facilitate access to resources, it was hypothesized that women venturing into male-typed domains are disadvantaged compared to their better-connected male counterparts. It was conjectured that the reliance of business owners on associates of the same sex can work for men, but should be detrimental to women because women are underrepresented in areas - venture capital, finance, supply of raw materials - that house the resources necessary for entrepreneurial survival and success in male-dominated sectors.

The female entrepreneurs in this sample followed one of three networking strategies. There were women who surrounded themselves with men – that is, the management in their firms, their staff, suppliers and confidantes were generally male –these women were said to be following a *heterogeneous networking strategy.* Other women followed a *homogeneous networking strategy*, populating their business networks with other women. There were also women that networked with members of both sexes – these women used a *mixed networking strategy*. Regardless of which strategy they followed, all nontraditional women were less successful in their efforts to extract resources from ties than traditional women. The least successful nontraditional women, in terms of their ability to acquire resources, however, were those pursuing a homogeneous networking strategy. Nontraditional women may be prompted to follow a same-sex networking strategy for several reasons. The sociological literature views homophily as an innate element of human sociality (Feld 1982; Loury 1989; McPherson et al. 2001; Rotolo and Wharton 2003; Ruef et al. 2003). Segregated clubs guarantee at least some women positions of power in the group and link them to potential mentors and role models. The homogeneity of such associations also fosters closeness, increasing understanding, mutual favour exchange and reciprocity and providing a sense of moral support that encourages the business owner to persevere in difficult times (Welter and Trettin 2006). Importantly, other women can perform the dual roles of cheering squad and sounding board when one is isolated in an otherwise male-dominated industry. But the results of this study suggest that a homogenous networking strategy is an unwise move: the mean resource acquisition success rate of women that followed such a strategy was a mere 48.68 percent.

Why might the ability of nontraditional women to acquire resources be affected by the composition of their social networks? It is conjectured that, because of the historical male domination of sectors like construction and sound engineering, women simply do not hold the resources that nontraditional owners need. In contexts where women are rare, homogeneous

networking strategies are harmful to women entrepreneurs and detrimental to their efforts to obtain resources. However, women that know this, and elect to pursue a heterogeneous strategy, or are induced by structural forces to develop networks that resemble the industry profile also seem to suffer. In this study, nontraditional women that tended to network with men were more successful in mobilizing resources, but they secured them, on average only 71.39 percent of the time (table 6.34). It is suggested that these women found it difficult to obtain resources because of gender stereotypes held about their abilities in atypical roles. In her examination of gender and entrepreneurial networks, Hanson and Blake (2009: 139) concluded that "because entrepreneurship is male dominated as is the control of resources, women will always be outsiders unless they can demonstrate an affiliation that cuts across some dimension(s) other than gender". This study supports this contention only partially for not all entrepreneurship is male-dominated. The analysis conducted herein would suggest that women entrepreneurs only struggle to obtain resources in male-dominated business sectors.

At least three processes are necessary for business owners to successfully leverage resources from network members. Firstly, individuals need the opportunity to encounter those individuals that likely hold the resources. It is argued here that in male-dominated industries, those individuals are likely to be male. Women moving in heterogeneous networking circles surely increase the odds of encountering resource holders over women moving in less diverse circles. While nontraditional women with heterogeneous networking strategies were more successful than their counterparts with other networking strategies in leveraging resources, the mean network homogeneity of a woman in the construction and sound engineering sectors was just 41.70. Said differently, 60 per cent of their network ties were other women.

Secondly, in order to activate links, individuals and potential contacts must be attractive to each other. According to the sociology literature, and in particular studies examining job seekers, this attractiveness is usually forged on the

basis of homophily, status and legitimacy. Cabrera and Thomas-Hunt (2007), for example, have suggested that, in the competition for jobs, candidates are assessed on four factors: competence, credibility, commitment and congruence. In this study, human capital was explored as a means by which nontraditional women might signal their legitimacy to resource providers. The extant literature is awash with claims that human capital is the key to economic success (Stuart and Abetti 1990; Anderson and Miller 2003; Carter et al. 2003; Roomi 2007) In this study, I distinguished between different forms of human capital – industry-specific experience (gained through education, employment or unpaid work experience), business ownership gained through a previous start up experience and highest level of education.

In the final regression model, two forms of human capital had very contrasting effects on resource acquisition for nontraditional women. Relevant human capital had a moderate, negative impact on resource acquisition. In fact, for every extra source of industry-specific experience gained by a woman, her success in mobilizing resources fell by over 6 percentage points. This finding directly contradicts Carter and Allen's (1997: 213) argument that "the more specific the human capital is to the nature of the entrepreneurial venture, the higher the likelihood of success". Additionally, nontraditional women with higher levels of human capital endured greater levels of discrimination than women with less industry-specific experience. It seems that stereotypical "beliefs are remarkably resilient in the face of empirical challenges that seem logically devastating" (Ross and Anderson 1982: 144)

This means that there is no advantage for these women in having prior experience in the industry as an employee or in learning the skills of the industry in an educational setting or as part of a hobby. In fact, they are penalized for doing so. It could be that, as sociologists have argued in the case in the world of work, these women are considered less likeable because of such high displays of competence (Gardiner and Tiggemann 1999; Kawakami, White and Langer 2000; Gunnarsson 2001; Rudman and Glick

2001; Carli 2006). It is well established that likeability is a prerequisite for the sharing of resources (Boissevain 1974).

Advocates of gender role congruency theory have argued that women that are incongruent in their occupations are victims of another kind of bind, known as the competence/likeability bind. “Sexist men split women into (at least) two polarized types: the traditional women who is likeable but incompetent and the nontraditional woman who is competent but not likeable…nontraditional women…are seen as competent because of the considerable (even if still limited) success they have had in the workplace…[but] such women may be penalized for not fulfilling the prescriptions that are seen characterizing the prototypic woman” (Glick and Fiske 1999: 216). Here, I augment the existing literature on the competence/likeability bind in occupations with evidence that nontraditional women entrepreneurs seem too to be penalized by displaying high levels of competence.

On the other hand, there was a substantial, positive link between prior experience and resource acquisition. Where women had prior experience in owning a firm – that is, any firm and not necessarily one in the same industry, they were much better able to land the resources they sought. I speculate a reason for this finding. Firstly, women that have previously owned a firm may have learned ‘the rules of the game’; the skills necessary for negotiating contracts, the people best to approach for advice and other key individuals that possess the supplies and knowledge they require. These women may not have to spend a long time searching for, and being rejected in their pursuit of resources, rather, they are likely to be able to pinpoint more readily the contact they need. This latter finding would suggest that the key to increasing the proportion of women in male-typed fields, at least from a social capital point of view, is to draw women from business ownership in other fields into male-dominated business sectors. Women might do well to start businesses in nontraditional fields after gaining some experience running enterprises in more traditional sectors.

Thirdly, in order to leverage resources, ties need to be motivated to supply them. According to the analysis above, this is the hurdle where many nontraditional women fall. Although they are able to encounter network members and activate links, the stereotyping and discrimination that arises through gender incongruency prevents them from securing those resources. Gender role congruency theory provides a useful framework for understanding the lower success in acquiring resources of nontraditional women compared to their counterparts in more traditional industries.

As women comprise a growing proportion of business owners, the stereotype that women do not assume leadership of organizations may be weakening. But theories and evidence from outside of the business and management literature suggests that legitimacy is tied up with a 'fit' between the sex of an individual and the sex-type of the activity they are undertaking. The continuance of entrepreneurial segregation may mean that women undertaking male-typed entrepreneurship will be viewed as less legitimate than a woman undertaking female-typed entrepreneurship. The reaction of customers, financiers and others to gender role incongruence is likely to be discrimination. Women owners of firms in gender atypical sectors suffer greater levels of stereotyping, discrimination and prejudice than owners of firms in sectors that are congruent with their sex.

The literature on legitimacy and trust also suggests that individual nonconformance with the activities predominant among members of their own sex reduces the ability to acquire *legitimacy*. Hanson and Blake (2009) illustrate the differences between two distinct forms of legitimacy with the example of the family. Families can and do take many forms, but the model that is most recognized in West consists of a heterosexual couple and biological children – the nuclear family. Polygamous families do exist and therefore can be imagined, giving them *cognitive legitimacy*, but because polygamy is generally considered unacceptable, this family model lacks *socio-*

political legitimacy. So, whether an institution is viewed as legitimate depends on the model existing institutions take. In the same way, the sex of a firm's leader could affect perceptions of legitimacy in industries where owner-operators have typically been of one sex. In Hanson and Blake's (2009: 138-9) words: because "practices are performed by people who have a gender, class and ethnic identification, for example, these aspects of social identity become wrapped up in the process of the legitimization of a particular activity or practice". Since network members use legitimacy as a signal of merit, they may withhold resources from illegitimate individuals. This explains why, for example, women job seekers receive tips about female-typed jobs but rarely about male-typed jobs (Hanson and Pratt 1991; Huffman and Torres 2002).

Closely related to the concept of legitimacy is the notion of trust. Trust is defined as the construct that determines that "one believes in, and is willing to depend on another party" (McKnight *et al* 1998: 474). McKnight *et al* (1998) set out to explain how, with no experience with, or firsthand knowledge of the other party, two individuals with no previous history of interaction might exhibit high levels of trust in one another. They theorized that the 'paradox of high trust' in initial relationships could be explained by cognitive clues (or 'first impressions') determined by stereotyping, and second-hand knowledge (or 'reputation'). Put simply, people exhibit strong tendencies to trust those they perceive to be of their own kind (homophily), because this creates a "situational normality" (p. 479) that is comfortable to all parties, and they evaluate these people based on learned information that travels through social networks – networks which, we have seen, tend to be homophilious. In other words, the very homogeneity of social networks sustains stereotyping.

In the final regression model, it was observed that obtaining more resources from male ties increased overall success in obtaining resources. This seems to confirm the idea that male ties are key to gaining resources for male dominated fields. While the ANCOVA revealed no association between homogeneity and discrimination for owners in the male-dominated industries

(there was, however, a link between network homogeneity and discrimination among women owners in the integrated industry), I suspect that this occurred because the relationship between network homogeneity and discrimination was N shaped rather than linear. The mean level of discrimination of women following a mixed networking strategy, at 3.62, was higher than that faced by women following a heterogeneous (mean=2.55) or a homogeneous (mean=1.25) networking strategy. This is an interesting observation, particularly given that women following a mixed networking strategy were even less successful than those networking with men in obtaining resources. I propose that these women are even worse off than those following segregated strategies because their networks are composed of people who do not hold the resources they need, and people who do not wish to provide them. The result is that nontraditional women are locked into a damned-if-they-do-damned-if-they-don't situation: no matter how their networks are constructed, they do not generate social capital. In other words, nontraditional women are locked into a kind of networking bind, which I shall term the *segregation-stereotyping bind*. This leads to, in part, an answer to the overarching research question guiding this study: why are there still so few women-owned businesses operating in male-dominated (nontraditional) business sectors? Based on the preceding analysis, it is ventured that women-owned firms are rare in these sectors because these women are unable to secure the resources they need.

7.4 Discrimination

The fourth objective of this study was to identify whether experiences of discrimination differ according to gender congruency, and to draw links between discrimination and resource acquisition for gender congruent and incongruent men and women business owners. Gender stereotyping is unobservable, so the survey asked respondents whether they had experienced sex discrimination, and to indicate the sources of that discrimination. In the previous research on women and entrepreneurship, there are innumerable examples of discrimination against women which

sociologists have attributed to the endurance of a 'think-manager-think male mentality' (Schein 2001; Gupta et al. 2009) and the representation of the concept of 'entrepreneur' as a masculine one (Bruni et al. 2004b). In this study, respondents reported remarkably few incidents of gender discrimination. But sex differences do remain, with far more women than men reporting sex discrimination from customers, staff, colleagues, suppliers, financial institutions and other sources. Contrary to expectations, there is no evidence from this study that discrimination against women business owners has waned.

Women reported the main sources of discrimination as customers, suppliers and financial institutions. This is not a new finding. For instance, Brush et al (2004: 2) have noted "compared to women executives, entrepreneurs have far more control of their own destinies in the businesses they create and develop. But, they encounter new and unseen barriers. These are not of a hierarchical sort… Instead, women entrepreneurs report challenges in establishing partnerships – with customers, suppliers, and more important, with financial resource providers". The fact that this discrimination continues is lamentable for these ties could provide crucial resources for women; without clients and financial backing, it is very difficult for businesses to survive. On the other hand, reports of discrimination from staff members were fairly low. Fewer than ten percent of women business owners reported that they experienced discrimination from employees and no women owners of childcare businesses said they had experienced discrimination from staff. It is possible that once established as leaders of firms of their own creation, women experience fewer challenges to their authority from workers than they might if they were simply executives or senior managers. Another explanation for this finding is that women hire others that adhere to similar values. In particular, it has been suggested that women owner-managers of firms in male-typed industries deliberately hire a larger proportion of women in order to avoid the conflict that arises from incongruency, because they believe women are less likely to challenge their authority, because they want to enjoy a close personal

relationship with subordinates, because they seek a gender alliance in an otherwise male-dominated context, or even because some men are reluctant to work for a woman (Goffee and Scase 1985; Smith et al. 1992; Marlow 1997; Verheul et al. 2002).

Experience of discrimination from staff members was higher among women owners of firms in sound, construction and publishing. These were also the firms that had the most segregated workforces; the mean proportion of staff members that were the same sex as the owner was 65.74 for publishing firms, and just 32.50 for firms in the male dominated sectors (table 6.6.). No woman owner of a childcare firm reported discrimination from staff members. At the same time, it should be noted that the childcare firms in this study were heavily dominated by female workforces – the mean proportion of women staff in childcare firms was almost 75 percent for firms owned by men and almost 84 percent for firms owned by women). This finding does seem to support earlier conjecture that stereotyping of the business ownership role has fallen among women (Schein 2001; Gupta et al. 2009).

I also suggest another explanation. Previous research has painted relationships among women supervisors and subordinates in workplaces where power differentials are constructed along sex lines as one of competition or solidarity (Ely 1994). For example, Kanter's (1977) classic study depicted women who made it to the top as exhibiting a 'queen bee' syndrome that drove them to identify with the (male) majority while distancing themselves from women subordinates for fear of being linked to the fate of women as a group – an act that made working relations uneasy. It is possible that the sex of the leader is less problematic in businesses where women feel less constrained by gender stereotypes, and thus perceived greater opportunities to advance. Since childcare is a traditionally female occupation and one which remains heavily female-dominated, gender may be less salient in women-led childcare firms, reducing the need for rivalries and improving relationships.

I have already attributed the higher levels of discrimination faced by nontraditional women to gender incongruency. Interestingly, and contrary to expectations, some men owners of firms in the childcare industry reported experiencing discrimination on the basis of their sex. Now, there is some literature that argues that men that work in childcare occupations suffer from a lack of credibility and the belief that they may present a risk to children (Allan 1993; Cameron et al. 1999), and this has been identified by policymakers as a key barrier to the greater participation of men in childcare (Equal Opportunities Commission 2005) but to my knowledge, this is the first study that has explicitly examined discrimination against men owners of childcare businesses. Contrary to the inferences of the existing literature that men are advantaged in entrepreneurship, men owners of childcare firms do perceive discrimination against them. This is an important finding for it is often assumed that business ownership offers an escape from labour market discrimination for minorities (Light 1984). That men that work in childcare occupations suffer from a lack of credibility and the belief that they may present a risk to children is well reported (Allan, 1993; Cameron et al., 1999); this has been identified by policymakers as a key barrier to the greater participation of men in childcare (Equal Opportunities Commission, 2005). This however is the first study that has presented evidence that male childcare business owners also experience discrimination. It is particularly interesting that the descriptive data shows that discrimination was aimed at men from several sources, particularly colleagues and staff, whereas the occupational literature typically depicts parents as suspicious of male child carers (Cameron 1999). This may be a localized finding given the so-called fad for male child carers in New York City. The media in New York City has made much of the so-called fad for male nannies – affectionately termed the 'manny' or 'Hairy Poppins'[26]; according to one article, "Tibetan nannies are so last year… everyone in NYC and its surrounding areas wants a 'manny'" (Phillips 2007: §1; see also Shapiro 2007). Given the small sample size

[26] The term 'manny' was coined by Holly Peterson in a 2002 article in the *New York Times*.

herein, the effect of business size on perceptions of discrimination could not be investigated. The sample of male childcare business owners is comprised of both large businesses (maximum number of employees = 120) and the self-employed without employees, and these groups may experience very different levels and forms of discrimination. Furthermore, while I did not explicitly collect data on discrimination on the basis of sexual orientation, a very large proportion of the respondents were LGB and the literature on male gay business owners in other sectors is suggestive of significant implicit and indirect homophobia against this group (Schindehutte, Morris and Allen 2005; Galloway 2012; Redien-Collot 2012). The precise nature of the discrimination experienced by men in the childcare industry requires further investigation.

This investigation also revealed little support for the claims of shifting standards theory in relation to men owners of childcare firms. Overall, perceptions of preferential treatment were small, although some men reported preferential treatment from customers. Again, this finding may be related to the 'manny' phenomenon – parents of New York City children may prefer a male to a female caregiver. The preference for a male childcarer is said to be greater among single mothers, who may seek a positive male role model for their children, or by parents of boys. Two news articles reported in Scrinzi (2010: 55) argues that male child caregivers "are presented as ''fun,'' ''sport guys,'' who offer children (especially boys) the opportunity to have an active life, rather than simply sitting indoors… a family with boys often prefers male au pair because they can play football and do all the usual rough-and-tumble things that boys like". While there are many journalistic reports of a growing demand for – and supply of – male childcare workers, this warrants further scholarly attention, particularly from the perspective of the self-employed. On the whole however, the evidence points to greater negative than positive discrimination against male owners of childcare businesses.

Finally, the data suggests that incidence of discrimination are negatively associated with network homogeneity. The finding that discrimination

increases as the homogeneity of networks falls could be interpreted that females are responsible for much of the discrimination against men owners of childcare firms. In this sample, the vast differences in network homogeneity scores suggests that owners in the male-dominated sectors tended to network with other men, while the owners in the childcare sector tended to network with women, but also a relatively large proportion of men. Those networking decisions may account for the experience of discrimination. Said differently, owners with networks that are populated by members of their own sex experienced less discrimination than those with predominately other-sex networks. The descriptive data showed that the main sources of discrimination were colleagues (i.e. partners or other business owners) and members of staff. The content of these discriminatory practices is not known and worthy of further investigation.

Nevertheless, despite claims of sex discrimination, nontraditional men owners did not suffer in terms of resource acquisition. Gender congruency theory suggests that women are penalized for violating gender norms, but that men are rewarded for pursuing atypical activities (Williams 1992, 1995). It is possible that similar processes are at work here. However, I speculate that men are successful in securing resources because of their longevity as business owners. Business ownership, regardless of sector, is a traditional activity for men, even if they are operating firms in areas that are not considered typical for men. I have already noted that even the most female-typed business sectors in New York (including wedding services and floristry) are male-dominated. The childcare sector was the focus of study of nontraditional men in this research, however, caring for children is an activity that is unique in terms of its gendering, and the level of emotive debate to which it gives rise. Whether the findings relating to men childcare business owners would be replicated had the research been undertaken other female-typed sectors is questionable. The methodological inability to identify any other woman-dominated, female-typed business sector for this research also

raises the question of whether the term 'nontraditional men business owners' is a misnomer. Again, further research is required to unravel this issue.

7.5 A resource-based theory of entrepreneurial segregation

A curious observation was the foundation of this thesis: why has women's entry into business ownership in male-dominated sectors not kept pace with women's migration into entrepreneurship as a whole? Or, said differently: when women decide to strike out on their own, why do they opt to establish themselves in the most stereotypically female business domains? In chapter 2, an attempt was made to answer this question, by drawing upon the existing literature. While the extant literature is limited in both volume and scope, the review revealed that gender likely shapes innumerable antecedents of entrepreneurial behaviour: their human capital investments, their educational, occupational and technical expertise, personal career goals and objectives, access to credit, family responsibilities and a host of other intervening variables that may encourage women and men to develop businesses in segregated areas of the economy.

To identify if, and precisely how each of these factors influence business choice was beyond the scope of this thesis. Instead, I opted to investigate the role of *social capital*, treated here as the resources transmitted through personal ties, or *social networks*. In doing so, I hoped to develop a resource-based theory of entrepreneurial segregation (objective 5). There are important reasons for isolating this element of the entrepreneurial process. For entrepreneurs to translate good ideas into viable enterprises, they must locate and assemble a good deal of resources or 'social capital': start-up and ongoing finance, physical equipment, clients and customers and the wisdom, knowledge and experience of stakeholders. Since owner-managers will not possess adequate stocks of these resources themselves, it is usually critical for them to seek assistance from others – their social network. Accordingly, social networks can be thought of as the currency by which business owners

access and mobilize these resources (Sorenson, Folker and Brigham 2008; Diaz-Garcia and Carter 2009; Hanson and Blake 2009; Sousa et al. 2011).

Key commentators on the topic concur that a business can rarely be sustained without the support of others. In articulating his sociological theory of entrepreneurship, for instance Reynolds (1991: 61) argued that "decisions to 'seize' opportunities are made when the opportunities present themselves; if no opportunities are present or other factors constrain choices, the entrepreneurial behavior will not occur" and "the strongest evidence supporting the importance of social networks is that most entrepreneurs start new firms 'at home' in familiar geographical contexts – same community and political jurisdictions – as well as industry contexts" (Reynolds 1991: 64). In attempting to secure resources, business owners must know that the resource exists, have access to the holder of the resource, be perceived to be in need of the resource, and, the literature reviewed above would suggest be seen to fit the usual prototype of a person who uses the resource. Whether any given individual achieves those four criteria depends on their *opportunity structure*, which is determined by, in addition to their human capital and background, the composition of their social networks.

While the findings presented above do seem to support the proposition that under-resourcing precipitates segregation in entrepreneurship, it is postulated that the nature of the relationship between resource seeking, resource acquisition and decisions about entrepreneurial work is multi-layered and highly complex. Taking a critical realist perspective, there is evidence that entrepreneurial decisions are made both within the constraints imposed by social networks and in accordance with the agency exercised by individuals operating within those structures. Bourdieu's forms of capital, alongside his concept of habitus can perhaps help to elucidate what can be an abstruse area (Bourdieu did not claim to be a critical realist but Steven P. Wainwright (2000) has convincingly argued for the salience of his ideas for realist research). An understanding of capital and habitus allow for an analysis of

how domination of a certain field can endure, and for this reason, several researchers draw on Bourdieuian concepts in seeking to understand the persistence of gender inequalities (Skeggs 1997; Krais 2006). In the current study, Bourdieuian concepts enable us to make sense of the host of factors driving segregation in entrepreneurship. Bourdieu (1993) described any flexible social structure as a *field* or 'game' comprised of 'players'. These players "help to reproduce the game by helping – more or less completely, depending on the field – to produce belief in the value of the stakes" (Bourdieu 1993: 74). Those beliefs reinforce the value of the rules and discourses prevalent in the field, which in turn frame participation in the field. According to Bourdieu, participation depends on two key factors: an individual's possession of capital and their *habitus*. Habitus, as discussed in section 2.4.3 can be thought of as those dispositions, tastes or worldviews that are linked to an individual's history and "become durably incorporated in the body" (*ibid*: 86). Importantly, each field gives rise to its own habitus, which becomes embodied in the players within that field. At this level, habitus encompasses the legitimate rules of the game. Individuals that have had a long history of playing the game, thus have a habitus that matches the field – in such circumstances, power relations are seen as natural, unremarkable and 'normal'. The habitus reflects and reinforces social classifications such as gender, ethnicity and social class, but it is not fixed because of the interaction between the individual and their lived experience.

Importantly, there is a relationship between an individual's habitus and their stock of capital – the habitus, which includes gender and other ascribed and acquired characteristics, frames and influence the stock of capital to which individuals have access, and this "capital does not exist and function except in relation to a field" (Bourdieu and Wacquant 1992: 101). The four capitals (economic, cultural, symbolic and social) can be reproduced across generations, or within an individual's life – for instance, early investment in cultural or human capital can bring about returns in economic capital later in life. What is important is that decisions regarding the conversion of capital

require habitus - this is what Bourdieu meant when he talked about the 'generative capacities of dispositions' (Bourdieu and Wacquant 1992). Habitus reflects social characteristics and the judgments conferred upon them, so that those endowed with symbolic capital influence what is viewed as legitimate within a field. As Skeggs (2004: 17) has argued, "legitimation is the key mechanism in the conversion [of capital] to power ... Capital has to be regarded as legitimate ... before its value is realizable". Applied to this study, it may be inferred that nontraditional women's involvement in male-dominated sectors such as construction and sound engineering lacks socio-political legitimacy among the long-term players of the game: men. Thus, women's ability to reap the rewards of networking may be hindered by their inability to develop the legitimacy and credibility that comes from associations with powerful others. Given the embeddedness of gender stereotypes in society, even where a woman overcomes stereotypes to start up a business the veneer of social acceptance may not override the gendered sentiments of those with whom she interacts. This problem is likely to be exacerbated if the activity in which she is engaged is typically male for two reasons: 1) because the activity itself is seen as unsuitable for a woman and b) because the individuals with whom she must interact in the course of her business activities – men - are unaccustomed to a female presence. These factors together may prevent women from accessing the resources that they need to start, maintain and grow their firms and may drive them to establish businesses in more 'female-friendly' sectors.

Alongside this Bourdieuian explanation, there are insights from the social network literature. In his famous discussion of the decline of civic America, Putnam (2000: 359) contended, "historically, social capital has been the main weapon of the have-nots, who lacked other forms of capital". This assertion assumes agency, but from a structural point of view, individuals are known to gain better connectivity because of their existing position in networks (Barabasi 2003). According to network analysts, network growth adheres to the principle of *preferential attachment.* As networks grow and develop, new

nodes follow an 'unconscious bias', linking with a higher probability to the most well-known nodes. This explains why, for example, business industrial districts emerge. New ventures in say, the clothing industry gravitate towards Garment District area of Manhattan because it is known that this 'node' has a vast number of 'links' (Light 1984). Combining business and social network parlance, where there are several business ventures in an area, an entrepreneurial context is created because there are more relevant social networks comprised of individuals that possess the information and knowledge necessary to start firms (Greve 1995).

This phenomenon is known in the network science as the rich-get-richer principle, because the most well connected nodes accrue even more links at an exponential rate. In many cases (although not all), the oldest nodes are the most advantaged, having had a longer time to accrue links. The nontraditional sample of businesses in this study was significantly younger than the traditional sample of businesses (table 6.5), and firm age was found to be a key driver of the ability to access financial resources (table 6.22). With less knowledge of the sector and less time to network, nontraditional women are likely to have accrued fewer links to the 'right' networks. Men, on the other hand, have had a longer history of business ownership, and while they may experience gender stereotypes in the childcare sector, the adverse effect of the latter may be crowded out by the positive effect of the former.

7.6 Scholarly contribution

This thesis makes several scholarly contributions. Efforts to understand the causes, consequences and characteristics of segregation in the labour market have been focused on employment, rather than entrepreneurship, and very little is known about the antecedents of "entrepreneurial segregation". Studies on 'gender' and entrepreneurship tend to focus on women's experiences, reducing men to a control group, which has only served to intensify the 'othering' of women in entrepreneurship. Research has been focused on two-group comparisons of sex differences but has paid little difference to *within-*

category differences. Moreover, the extant literature has made surprisingly little effort to disentangle the confounding effects of contextual factors like sector on all manner of business outcomes, from firm performance and growth to leadership styles.

This thesis extends the sociological literature on occupational segregation and the business literature on gender and entrepreneurship by highlighting the challenges faced by business owners, particularly women, operating in gender incongruent fields. In the business and management discipline there have been some previous, scattered attempts to distinguish between groups of entrepreneurs (Cowling and Taylor 2001; Gundry and Ben-Yoseph 2002), but in general, studies on entrepreneurial segregation are few and far between. Those identified in the literature review are outdated; favour small, convenience samples or case studies, take an atheroretical approach to empirical research. It has therefore been difficult to draw conclusions about the experiences of business owners based in traditional and nontraditional sectors from previous empirical work.

By collecting data from a stratified random sample of women and men business owners in gender traditional and nontraditional sectors, I made an attempt to overcome the weaknesses in previous research. The sample was large enough so that comparisons of small subsamples could be performed. The analyses revealed that many so-called 'sex' differences disappeared once sex controls were entered for sex-composition of business sector. For example, there is vast literature that claims that women business owners nominate kin as network members to a greater extent than do men (Greve and Salaff 2003; Renzulli and Aldrich 2005; Klyver and Terjesen 2007; Diaz-Garcia and Carter 2009; Loscocco et al. 2009) so that the reliance of women on kin for social capital is almost an accepted wisdom. In this study, in the aggregate, women did obtain a greater proportion of businesses resources from their spouse and other family members than men did, but these sex differences disappeared once owners in the same industry were compared.

Similarly, while women were less successful than men in extracting resources from their networks, men and women entrepreneurs that owned firms in sectors traditional for their sex exhibited equal levels of success in that regard.

These results indicate that the sex-as-a-variable approach that has been prevalent in entrepreneurship research may have served to mask the considerable differences between groups of women (and men) business owners. Previously, findings derived from undifferentiated samples have been extrapolated to the wider entrepreneurial population without misgivings. In particular, in examining female entrepreneurs, the "dominant service sector characteristic often mask[s] the nature and achievement of women in high-growth and nontraditional areas such as finance, insurance and real estate, wholesale trade, manufacturing, transport" (Moore 1999: 372). If, when conducting their analyses, researchers combine all types of women owners and all types of women-owned firms into one category and report the averages, the characteristics of women who own and operate firms in sectors that are not typical for their sex are masked. This tendency to treat "women business owners" as one homogeneous subset of the wider entrepreneurial population, and as one that differs from "men business owners" may have distorted previous research findings. The conflicting findings in, for example, the literature on financial discrimination may be linked to such a singular approach. Future research on women entrepreneurs should be undertaken on an industrially differentiated basis; entrepreneurs should be recognized as a diverse and complex group of individuals with varied backgrounds, circumstances and worldviews. Distinguishing business owners in this way is important because as Mirchandani (1999: 225) has pointed out,

> "While there has been some reflection on the difference which the sex of business owner makes, this reflection has not been contextualized within theoretical understandings of the ways in which entrepreneurial work is situated within gendered processes which form and are formed through relationships between occupation, organizational structure and the sex of the worker".

That the essentialism inherent in entrepreneurship research continues despite repeated conclusions that there are more commonalities than differences between male and female entrepreneurs (Malach-Pines and Schwartz 2008) is bewildering. Although business ownership remains male-dominated, in societies where it is no longer unusual to see a woman in a leadership position, it is possible that the association between entrepreneurship and a generic masculine stereotype may have weakened (Powell et al. 2002). Labeling business ownership as a nontraditional activity for women now seems almost archaic given that women represent 40 percent of US business owners and in light of the fact that women owners are concentrated in gender-traditional fields (Greene 2000). The significant levels of discrimination perceived by women owners of firms in the non-female dominated sector identified above lends credence to the suggestion that the general stereotype regarding women in business may be being replaced by more specific stereotypes regarding the type of business that men and women should own and operate.

Like entrepreneurship, societal structures are gendered, reflecting and promoting in women and men internalized constructions of reality and potential. For example, it has already been noted that encouragement or discouragement to start businesses and access to professional support systems may differ for women seeking to start nontraditional enterprises. The sex composition of the important networks, trade associations and other industry-based organizations will reflect the sex composition of the industry, which may increase or reduce the attractiveness of joining these to one sex or the other. Relationships affect entrepreneurs' access to, and ability to mobilize support and resources; nontraditional women experience stereotyping discrimination from other people with whom they come into contact, and they obtain knowledge and social capital from those that they encounter in education and work.

To study women entrepreneurs without examining the gender structuring of entrepreneurship legitimizes the gender-blindness that renders masculinity invisible, allowing it to emerge as "the universal parameter of entrepreneurial actions" (Bruni, Gherardi and Poggio 2004a: 410). This research has tentatively touched on the ways in which contextualized, situated and gendered entrepreneurship intrude into business owners' networking activities. There remains the unexplored possibility that sex-typicality of sector could be linked a host of other business outcomes which continue to attract scholarly interest.

There have been many studies on congruency in organizational contexts, but very few in entrepreneurship. I suspect that the application of role congruency to the entrepreneurial arena has been overlooked because scholars in entrepreneurship appear to be racing to develop new and exciting theories to bolster this emerging discipline. Here, I have attempted to respond to the calls of others that network and entrepreneurship research – and particularly that with a gender focus – should draw more extensively from the work of other disciplines (Green and Cohen 1995; Kotthoff and Baron 2001; Jack 2005; Lewis 2006). Role congruency theory was developed in sociology, and there are other concepts and theories developed within that discipline and within social psychology that I believe have relevance for gender and entrepreneurship: *expectation states theory* (Ridgeway and Smith-Lovin 1999) and *cognitive dissonance theory* (Koberg and Chusmir 1991) are just two examples.

From a theoretical perspective, there is much to be achieved from research that is grounded in theory. Entrepreneurship is a young discipline and can gain much by borrowing and deriving theories from sister disciplines in the social sciences. By operating within a single discipline it is all too easy to fall into the habits of routine thought which have become standardized within that philosophical postulate. As Greene and Cohen (1995: 304) have argued: "in seeking to understand the process of female entrepreneurship, it is not

enough to simply 'add women and stir'…[research] must look not only to the existing literature on entrepreneurship and small business, but should be situated within the literature on women and the labour market, and the domestic division of labour more generally".

Based on my preliminary literature review, it became clear to me that the entrepreneurship discipline offered insufficient knowledge from which to develop a theory of entrepreneurial segregation. Given that the phenomena under study – lacked empirical research and has been, until now, been devoid of theory, a research environment that facilitates creative theory building is crucial. I therefore had to borrow concepts and theories from beyond the boundaries of business and management, including social psychology, economics, mathematics, anthropology and sociology. The latter discipline and entrepreneurship are comfortable bedfellows because sociology is about the constituents of social systems and entrepreneurs are a critical type of social actor (Reynolds 1991). Gender intrudes into every aspect of social life; it is argued here that such a complex issue deserves, and can only effectively be served, recognized and emphasized by, research that is interdisciplinary in nature. "Like the patterning of women's experiences, the multiple dimensions of gender – reaching across consciousness and emotions; discourse and meanings; the dynamics of social interaction and contexts; and institutions and social structure – challenge traditional divisions of knowledge… the scope and complexity of gender makes it difficult to sharply distinguish levels of analysis, although scholarly practices reinforce such distinctions" (Kotthoff and Baron 2001: 14). In line with this spirit the interdisciplinary approach adopted here recognizes that, just as gender is deeply embedded in context, so research should be embedded in, or at the very least, cognizant of, developments in fields beyond disciplinary boundaries.

From a methodological perspective, this thesis makes three main contributions. Firstly, in adapting an under-used data collection instrument, I have attempted to reconcile the debate regarding what exactly constitutes

social capital. Up to now, data on social capital has primarily been collected and analysed using quantitative methods based upon “name generator” survey formats. While these are known, reliable means of measuring the shape of relations between actors in a network, they tell us nothing about the role of social contexts and the impact of these on the resources willingly exchanged as well as the actual volume of resources exchanged. Other researchers have argued that qualitative methods are much better at extracting this kind of information (O'Donnell et al. 2001; Coviello 2005; Jack 2010). However, using qualitative methods to collect network data is notoriously laborious, and the small sample sizes such methods necessitate mean that results tend to be limited in representativeness and generalizability. That researchers studying women entrepreneurs rarely disaggregate respondents on the basis of industry or other variables that systematically vary by sex is perhaps linked to this preference for qualitative methods. And of course, from a pragmatic point of view, academic journals specializing in network studies seem to prefer quantitative work (the journal *Social Networks* is a good example).

To overcome these problems, this research modified the Resource Generator network instrument, a tool that facilitates the rapid collection of large amounts of quantitative data regarding social networks, including conventional measures such as strength of ties and diversity, but which allows for measures of the volume of tangible and intangible resources actually extracted from the network. Additionally, the inclusion of variables measuring stereotyping also allows for an assessment of the impact of *context* on acquisition of resources and answers the call of network researchers that emphasis must be placed on the natural setting in which the entrepreneur is immersed (Coviello 2005). Importantly for the nontraditional women in this sample, network sex composition was unrelated to resource acquisition but sex composition of resource providers did exert an effect. This finding highlights the major drawback of name generator methods, and particularly so when we are discussing sex and other ascriptive characteristics: lists of

names or potential resource providers are of little use if they are unwilling to provide them.

Related to the use of the Resource Generator, this research breaks new ground in the use of the World Wide Web as a means of the delivering the data collection instrument. Internet methods offer several advantages to researchers over the face-to-face and telephone interviews. Just some of these advantages are: reduced costs, use of interactive research design, machine readable data and shortened data-collection-analysis-presentation cycles (Ganassali 2008; Fan and Yan 2010). But although they are frequently used to collect data on attitudes and opinions, Web-based methods have been under-used in network research. This is because the most popular data collection instrument (the “name generator”) is extremely complex and unsuited to self-administered modes of collection. However, the simpler Resource Generator is highly suited to online methods and its use here highlights to researchers the need for network data collection instruments that are more malleable, simple and appropriate in the media age.

CHAPTER EIGHT: Future Directions

There will come a time when you believe everything is finished. That will be the beginning.

Louis L'Amour, Lonely on the Mountain, 1984

8.1 Directions for Future Research

The problem that inspired this study was: why are there so few women business owners in male-dominated industries? The findings presented above have offered some clues, but this question remains far from answered. As I had speculated in chapter 4, rather than uncovering a single 'truth', this study has generated a number of further avenues of investigation:

Longitudinal studies on entrepreneurial choice. The literature I reviewed and the empirical study that followed suggest that complex social processes hinder women's motivation to start firms in male-dominated business sectors. Segregation in business ownership is theorized to be the consequence of a number of factors: a combination of women's limited wealth, and the prohibitive cost of entry to capital-intensive sectors, skill deficits resulting from vertical and horizontal occupational segregation, and a lack of access to resources. However, the cross-sectional research design limits these conclusions to associational ones, rather than to direct effects. Additionally, since only existing business owners were surveyed, there are problems with generalizing these results to a population of women that have the aptitude or desire to start a male-type enterprise but were prevented from doing so. Further research is required to disentangle the cause and effects of sex segregation in business ownership and gender stereotyping in social networks. Entrepreneurial segregation may be caused by stereotyping of network ties, segregation may cause stereotyping, or the two processes may be interwoven. While business owners may not start firms until they are in their thirties, there are a myriad of network connections that are already in

place before choices regarding entrepreneurship are made. As individuals move through life, they acquire social as well as human capital. Structural constraints found in the workplace, in hobbies and leisure, in marriage and family roles and in organized and social life help to mould the social networks of men and women business owners. Social structures function as opportunities and constraints that can shape business enterprises and determine their outcomes. Only longitudinal research on how – and at which points - social structures impact upon women entrepreneurs, can uncover the specific processes that drive women into sex segregated business ownership.

Impact of network composition and resource acquisition on firm performance. Much of the research on women's entrepreneurship starts from the assumption that business ownership is an alluring alternative for women who face the obstacles of glass ceilings, pay gaps and prejudices in other forms of paid employment. By demonstrating that not all women are equally successful in leveraging resources from their networks, this study adds to the growing evidence that "small firm ownership does not, in face, offer escape from labour market discrimination for women" (Marlow, 1994: 174; see also Homlquist and Sundin, 1989; Marlow, 1997;). Although I found that women in male-dominated industries acquire fewer resources from their networks, data restrictions meant that it was not possible to link resources acquisition to business performance. I am not the first researcher to have experienced difficulties in acquiring details of sales levels from privately owned firms (Anna et al. 2000), but this difficulty may have been compounded by the use of the Internet as a data collection tool. I could have used the data provided by national databases (both databases I used to draw the sampling frame give 'sales range' data) but this is normally given in broad ranges, making analyses difficult. Whether the difficulties that women in male-dominated business sectors encounter in mobilizing resources influences the performance or longevity of their ventures is an important avenue of research. Previous research has indicated that the differences in the growth, survival and size of firms owned by women and men are moderated by gender

differences in industry location. This raises the question: how are these women able to overcome network constraints and develop successful firms? Watson (2002) has already suggested that women are just as effective in using resources, but they use fewer resources per firm than do males. Future research would do well to directly test this idea.

Ethnicity and entrepreneurial segregation. The influence of gender/sex segregation and stereotyping on the exchange of resources was the focus of this study. But where stereotyping is concerned, gender intersects with many other visible and invisible characteristics, including race and ethnicity, age and social class. There is a need for research that recognizes the heterogeneity of entrepreneurs. In particular, there are three reasons why I suspect it would be illuminating to repeat this study, replacing the focus on sex and gender with race and ethnicity. Firstly, I observed in this study that people from ethnic minorities were overrepresented in sectors that are not traditional for their sex There is evidence elsewhere that women from ethnic minorities are often to be found working in nontraditional occupations, and the expansion of minority women-owned firms has been greatest in previously male-dominated fields (Moore, 1999). For example, Latina women own many more businesses in the traditionally male-dominated construction, accounting, engineering and manufacturing sectors than they do hotels, bars and restaurants (Gundry and Ben-Yoseph 2002). But ethnic minority women are said to experience even greater levels of discrimination when they are employed in gender typical occupations (Mansfield, Koch, Henderson, Vicary and Young 1991; Yoder and Aniakudo 1996). Whether traditional and nontraditional women experience the double disadvantage of sexism and racism to the same degree requires investigation.

Secondly when it comes to social networks, co-ethnic homophily has been found to outstrip gender homophily (McGuire 2000; Cross and Lin 2008), and entrepreneurs have been found to operate in racially segregated consumer markets (Carter and Marlow 2003; Smith-Hunter and Boyd 2004) Solitary

subgroup status and within-group resource exchange has been found to provide an infrastructure that allows immigrants or ethnic enclaves to gain advantages over outsiders, stimulating single-sector entrepreneurship (Light 1984; Lin 2000; Yoo 2004) . Nowhere is this more evident than in New York City, where historically, entire trades have been dominated by single ethnic groups (Aldrich and Zimmer 1986; Portes 1998). Thirdly, there are cultural nuances that may be linked to congruency/incongruency. For example, in South Asian cultures, tailoring and dressmaking is a socially valid occupation for males. Further studies on the ways in which social networks promote and reflect racial segregation in entrepreneurship are required. Other sources of social identity, such as age and sexual orientations are also worthy of research.

Detailed statistical analysis of segregation in business ownership. This research has investigated the social networks of women and men in three gender segregated sectors and one sex-integrated sector. But, which sectors are segregated – and to what extent – and which are becoming more acquiescent to the presence of female entrepreneurs is not known. Detailed analysis of the levels of segregation in business ownership and self-employment are required, particularly at the four- and six-digit detailed industry classification level. Such an examination might be carried with using the US Survey of Business Owners/Characteristics of Women Business owners data which provides information on business ownership by industry, average receipts, geographic location and employment size. Since this data is reported every five years, researchers could evaluate how segregation has changed over the years, as well as predicting future changes. The Center for Women's Business Research already reports simple statistics regarding changes in the industrial location of women-owned businesses, but more sophisticated analysis would be both illuminating and possible because of the auxiliary information that is collected by the Census Bureau (for example, sales and receipts, and level of payroll). One possible research question could be: where in the United States are women-owned traditional and

nontraditional businesses primarily located? Early studies suggested that women-owned firms in traditionally male sectors were concentrated in ethnically diverse states (Bowen and Hisrich 1986) but more recent studies have proposed that opportunities for women are greatest in rural, rather than metropolitan areas (Bird and Sapp 2004). Unfortunately, such analyses are less possible in the United Kingdom because no database that disaggregated businesses on the basis on sex of owner or three-digit industry classification is currently available.

Qualitative research on the nature of network relationships. In recognition of the beliefs of constructionists, I am careful here to avoid the trap of positivistic research by not relying solely on the statistical results presented above in drawing final conclusions about the social capital of gender typical and atypical entrepreneurs. Since entrepreneurial segregation is under-researched and not well understood, the findings presented here should be used primarily to provide a framework for discussion around the potential causes of segregation, to highlight areas for further research, and to provide the starting point for a theory of segregation. I have already noted that studies on social networks and entrepreneurship are heavily geared towards quantitative methods. Coviello (2005) is right to say that qualitative research adds a deeper and more meaningful element to network analysis. Ticking boxes and providing brief answers to closed-ended survey questions tells us nothing about subtleties of interaction. The structural and compositional dimensions of networks are adequately capture by quantitative analyses but richer information about the micro-level processes involved when business owners' activate relationships and seek resources from their ties can only be uncovered by qualitative research.

In particular, ethnographic observations of interpersonal interactions between same- and cross sex dyads would shed light on how some women entrepreneurs in male-dominated sectors are able to overcome the 'stereotyping bind'. Clearly, some women are able to do this – I noted in chapter 2 that the economic performance of women owned firms in

construction approaches that of man owned firms. Already, research outside the discipline of entrepreneurship provides clues that the content of relationships between same-sex and mixed dyads differs, For example, Dalton (1993) study of 1200 grievance and arbitration cases in three workplaces revealed differences in outcomes for same-sex and mixed-sex dyads. In grievance cases, trade unions won more often when the company representative and the union representative were both male; the union lost most often then the company representative was a woman and the union steward was a man. Dalton (1993) speculated that this occurred because women company supervisors prepared themselves better when they knew they were going to be faced with a man in negotiations. Other research has pointed to the situational effects of gender differences in salary negotiations (Barron 2003). Similarly, it would be useful to learn more about whether the behaviour of women-entrepreneurs differs – and how - if they are embedded in male-dominated or female-dominated networks.

8.2 Limitations

This thesis would be incomplete without some words of caution. There are limitations associated with methodology employed, the data collection instrument, and the analysis.

The major limitation is linked to the cross-sectional nature of the research design. I have attempted to uncover the reasons why women do not enter business ownership in male-dominated fields based on data collected from women already operating in these fields. This means that the findings can only tell us why women-owned firms are not sustained in these sectors, rather than why they do not enter in the first place. Locating a sample of business owners that had attempted and failed to establish enterprises in nontraditional fields would prove difficult. However, this is certainly an avenue for further research.

Similarly, the way in which the sample was drawn could spur criticisms. Every attempt was made to ensure that the sample was representative, but analyses that linked social networks/stereotyping with resource acquisition may have been affected by the failure to include new and discontinued businesses in the sample. In the survey, no owners described their firms as at 'planning stage' and less than one percent described themselves as 'new start ups'. Since only mature firms were included in the sample, the relationship between gender congruency and resource acquisition might be seriously exaggerated by *survivor bias*. In other words, including businesses owners that were unable to successfully leverage resources from their networks (because of gender stereotyping or otherwise) and subsequently went out of business, or nascent businesses that are yet to carve out useful networks could have had a significant impact on research findings. The oversampling of mature firms is certainly due to the nature of the databases used. Further studies of this kind should attempt to include a mixed of failed and successful businesses, and would do well to incorporate a longitudinal design.

The method of data collection was novel, and could therefore be subject to criticism. Because the names of network members were not generated, as is common with other network delineators, several conventional morphological network indices could not be computed, including network size, multiplexity and density. Previous researchers have found these measures to successfully predict business outcomes such as profitability. Perhaps with further adaptations and refinements, the Resource Generator could be tweaked to collect such data. There may also be problems with the ways in which some of the key variables were operationalized. Contrary to hypothesized, the variable measuring sex-type of university major was relatively unimportant in determining network outcomes. In hindsight, there was perhaps a difficulty in distinguishing between courses based on the concentration that is *now* female. Respondents may have taken a course at a time when it was previously dominated by the opposite sex. For example, law was coded as female-dominated, but this is a recent phenomenon; until the

1990s, law courses were male-dominated (Jacobs 1989). Since I coded courses depending on the sex concentration in 2009 (see appendix 4), this variable may have been flawed.

Some may argue that the variables measuring discrimination were also flawed. Since gender stereotyping is unobservable, I asked respondents whether they had experienced discrimination from any of a number of sources. It could be argued that stereotyping is not tantamount to discrimination, and that the two measures are empirically distinct. However, there is a good deal of literature that reveals that discrimination is usually a consequence of stereotyping (Marini and Brinton 1984; Gardiner and Tiggemann 1999; Davies-Netzley 2000; Fassinger 2002). And, I am interested not in the degree to which network ties internally stereotype incongruent women, but the tangible impact of this on efforts to acquire social capital. I am therefore confident that using discrimination as a proxy for stereotyping with an appropriate method.

Critics might argue that it is unimportant if resource acquisition is lower among nontraditional women – resources can be purchased on the open market; what matters is whether this affects the performance of their businesses. In the opening chapter, I discussed the evidence that women-owned firms appear to perform particularly well relative to those owned by men when they are based in a traditionally male sector. I view this paradox as less of a limitation and more of an avenue for future research. How nontraditional women overcome the challenges in mobilizing resources to build high growth businesses is worthy of scholarly inquiry. I had originally envisaged drawing links between networks, resources and business size/performance in the current study. To this end, respondents were asked to provide details of their current annual income and their firms' profits and sales. However, very few respondents opted to provide this data. While the problems associated with encouraging survey respondents to provide sensitive data are well discussed in methodology guidebooks, it is possible that reluctant to share this

information is intensified in online surveys. Concern over Internet security and the growing problem of 'phishing'[27] emails has increased distrust of unsolicited emails (Kaplowitz et al. 2004). Yet, obtaining personal information is not impossible. For example, in Roomi's (2007) survey of 517 business owners, 83 percent shared their profit information. In hindsight, I should perhaps have provided information to respondents about how this data would be used; this may have increased the response to these particular questions. Future researchers would do well to attempt to collect this information, and to examine the links between resource acquisition and business performance for gender typical and atypical business owners.

Because this study was conducted in one American city, these findings may not be generalizable to other nations or cultures. The female entrepreneurship rate is high in the US, and growth has been so swift that "the US is often regarded as an exemplar of progress regarding the expansion of female entrepreneurship and is used as a benchmark for achievement in other economies" (Marlow et al 2008: 335). It is therefore possible that atypicality may be more acceptable in the United States. In cultures that have lower levels of female business ownership - such as Ireland (O'Gorman and Aylward 2007) or Bulgaria (Manolova et al. 2007) – the experience of women business owners (both traditional and nontraditional) and the composition of their social networks may differ. Again, it would be insightful to replicate this study in other economies.

8.3 Conclusion and contribution

After reviewing the literature on entrepreneurial segregation, and studying it within the context of social networks and resource acquisition, I make some final closing points. Firstly, while sex discrimination against women business owners has not disappeared, the analysis presented above suggests that women who are seen to be doing that something that 'men do' experience

[27] A way of attempting to obtain personal information (e.g. credit card details) by purporting to be a trustworthy entity.

greater levels of gender stereotyping, and that this stems from several sources. This stereotyping prevents these women from successfully securing the resources they need to run their firms, which may intensify gender segregation in business ownership. Men too experience discrimination, but this does not translate into reduced resource acquisition for these business owners. This may explain why we observe men's entry into self-employment in what may be considered to be stereotypically female domains –floristry, wedding planning and childcare are just some examples – while the pace of women's entry into stereotypically male business sectors has been much slower[28].

Ultimately, there are two messages to be taken from this research. Firstly, a great deal is to be learned by studying entrepreneurs, not as simply 'women' and 'men' but as members of groups determined – in part at least - on the basis of the industry of their venture. There is somewhat of a consensus in the extant literature with regard to certain issues about sex, business ownership and social networks: that marriage and family increases use of strong ties; that women with spouses name more females as network members than unmarried women; that human capital is positively correlated with better business outcomes. The results of this study suggest that these principles cannot be generalized to all entrepreneurs; rather, there are different patterns with regard to these variables depending on business location.

To me, this is an unequivocal conclusion: if one accepts that gender not an immutable biological fact, but an identity that is negotiated and constructed in routine social interaction, it follows that contextualized gender relationships will attribute different meanings to the idea of 'female' and 'male'. Individuals are known to perform their female-ness or male-ness in accordance with the expectations and assumptions of their interactants; (West and Fenstermaker 1993), who those interactants are depends on the activity in which they are engaged. Since membership in a sex category may be invoked to discredit or

legitimize their performance, the context in which gender is 'done', becomes highly relevant. But, business researchers' obsession with describing, explaining and predicting 'women's ways', and their dogged pursuit of the detection of sex-related influences on business performance has reduced women entrepreneurs to a monolithic, homogeneous category, undifferentiated in terms of race, socioeconomic status, age or other identities, and virtually always the binary opposite of 'the male entrepreneur'. The entrepreneurship literature would surely be enriched if empiricists took the time to disaggregate samples by type of venture or industry, and took greater account of any other variable that systematically varies by sex.

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Appendices

Appendix 1: Email to sample

Dear <respondent first name>

I am a PhD student at Manchester Metropolitan University. My research is seeking to understand more about gender segregation in the business ownership of firms in the <publishing/childcare/sound recording/construction> industry in New York.

<Business name> has been randomly selected to take part in this study. I am writing to ask for your assistance in completing a short survey about you and your business. This survey should take no more than 15 minutes to complete and is available by clicking this link: http://www.survey.mmu.ac.uk/networks/

I wish to make clear that the information provided will be treated as confidential and no personal data will be disclosed to anyone. I plan to make the summarized results available to you, if you wish, upon completion of this study.

I do hope that you will agree to assist me in collecting this information. Although there is much conjecture as to why this sector is so gender segregated, there is little hard data reflecting the experiences of men and women in the industry. Thus, your responses are extremely important in obtaining a representative picture of the experiences of business owners.

If you require any further information, I can be reached at <mobile phone number> or by email at <email address>. I am supervised by Professor Rosemary Lucas; she can be contacted at <supervisor's email address>.

I thank you in advance for your cooperation

Natalie Sappleton
PhD Candidate
<University address>
<University email>
<Personal mobile phone number>

Appendix 2: Survey Questions

1. What is the name of your business?

2. What is the zipcode of your **business** address?

3. What is the legal status of your firm?
   ❍ Sole Proprietor ❍ Partnership (General or Limited Partnerships) ❍ Limited Liability Company ❍ Corporation ("C" Corporations and "S" Corporations) ❍ Other *(please specify)*

4. A woman-owned business is *a business that is at least 51% owned, operated and controlled by a woman or women.* Would you say that this is a woman-owned business?
   ❍ Yes, this is a female-owned business
   ❍ No, this is a male-owned business
   ❍ This is an equally male-female owned business
   ❍ I don't know

5. Which of the following sectors best describes your business? (select an answer)
   ❍ Childcare services (e.g. daycare center, nanny)
   ❍ Publishing and related
   ❍ Construction and related (e.g. building, joinery, carpentery)
   ❍ Sound recording and/or engineering (e.g. audio, acoustical work)

6. At what stage would you say this business is at?
   ❍ Planning stage (just a thought or an idea) ❍ New start-up ❍ Young ❍ Well established

7. Approximately how long, in **years and months**, have you run this business?

8. Did you set up this company yourself, or acquire an exiting company?
   ❍ I set up this business ❍ I acquired this business

9. Have you ever run any other business?
   ❍ Yes ❍ No

10. Prior to starting this business, did you have any experience in this industry? (*select all that apply*)
    ❍ Yes, as an employee
    ❍ Yes, as a business owner
    ❍ Yes, as a hobby
    ❍ Yes, some unpaid work experience
    ❍ Yes, as a student

11. Approximately how many hours per week do you spend working in *this* business?

12. Do you have any employees?
    ❍ Yes ❍ No Employees
    Approximately how many employees do you have?

13. What is your current personal annual income from this business?

14. What is your best estimate of your firm's sales in the past 12 months

15. What is your best estimate of your firm's gross profit in the past 12 months?

16. In the next 12 months, do you expect your business to expand, stay the same or get smaller?

❍ Expand ❍ Stay the same ❍ Get smaller

17. Approximately what proportion of the following are the same sex as you?

	All	Most	About half	Some	None	N/A
a. The partners in this business	❍	❍	❍	❍	❍	❍
b. The board of directors of this business	❍	❍	❍	❍	❍	❍
c. The management team	❍	❍	❍	❍	❍	❍
d. This firm's suppliers	❍	❍	❍	❍	❍	❍
e. The employees of this firm	❍	❍	❍	❍	❍	❍
f. Our clients/customers	❍	❍	❍	❍	❍	❍
g. Other members of the **trade** organizations I belong to	❍	❍	❍	❍	❍	❍
h. Other members of the **professional** organizations I belong to	❍	❍	❍	❍	❍	❍
i. Other members of the **social** organizations I belong to	❍	❍	❍	❍	❍	❍
j. Other external contacts (e.g. financiers, advisers, competitors)	❍	❍	❍	❍	❍	❍
k. The people I generally talk to about business matters	❍	❍	❍	❍	❍	❍

18. Thinking just about your **commercial relationships**, have you or your business ever experienced discrimination or preferential treatment because of your **gender**? Please indicate below all sources of this treatment.

	Customers/ Clients	Staff	Colleagues	Suppliers	Financial Institutions	Other (please specify)
a. Discrimination	❍	❍	❍	❍	❍	
b. Preferential treatment	❍	❍	❍	❍	❍	

The next set of questions are about the people business owners might come into contact with.

Each question is about a specific resource. Please indicate whether you know a person who has provided you with the resources. Just one person per category will do.

For each resource, please indicate whether you know a male or a female, or if you do not know anyone that has helped you with the resource (If you have never required the resource, please mark 'N/A').

Please use the drop-down boxes to indicate the **main** way that you know each person. For example, if a woman is your best friend but is also your lawyer, mark 'Friend'. Use the radio buttons to indicate how well you know each person.

19. Can you think of anyone who…?

a. Has provided assistance with accounting or financial matters

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1*= *Do not know at all, 5*= *Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

b. Has provided this firm with a loan, investment funds or other type of finance

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍

Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(***1= Do not know at all, 5= Know very well***)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

c. Has provided assistance with legal matters

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(***1= Do not know at all, 5= Know very well***)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

d. Has provided assistance with childcare

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(***1= Do not know at all, 5= Know very well***)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

e. Has provided assistance in finding employees or other human resources issues

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1*= *Do not know at all, 5*= *Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

f. Has provided assistance in finding clients or securing contracts

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1*= *Do not know at all, 5*= *Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

g. Has helped you to acquire physical assets (e.g. furniture, fixtures, computers)

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

h. Has provided advice on government regulations

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

i. Has provided advice on product or service development

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

j. Gives you emotional or moral support in your job

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

k. Has provided professional services or expertise to your business

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

20. Can you think of anyone who…?

a. Has provided informal advice related to business

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

b. Has helped you make new, business related contacts

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

c. Has provided you with coaching, mentoring or training

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

d. Has acted as a role model to you

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank

manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1*= *Do not know at all, 5*= *Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

e. You met through a business, social or professional association and **with whom you now have a commercial relationship**

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1*= *Do not know at all, 5*= *Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

f. Has recommended your business to someone or has provided word-of-mouth advertising for the firm

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1*= *Do not know at all, 5*= *Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

g. Has helped you access distribution channels

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

h. Has provided you with market information

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(*1= Do not know at all, 5= Know very well*)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

i. Has helped you learn the informal rules of the industry

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍

Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(***1= Do not know at all, 5= Know very well***)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

j. You have become friends with as a direct result of owning this business

❍ Yes a male ❍Yes a female ❍ No I do not know anyone ❍ N/A

Main relationship

❍ Spouse/Partner ❍ Family member ❍ Friend ❍ Employee❍ Client/Customer ❍ Supplier ❍ Accountant, bank manager or other consultant ❍ Business organization member❍ Other business owner(same industry) ❍ Other business owner (different industry) ❍ Other

How well would you say you know this person?

(***1= Do not know at all, 5= Know very well***)

❍ 1❍ 2 ❍ 3 ❍ 4 ❍ 5

21. Your full name

22. Are you: ❍ Male ❍ Female

23. In which year were you born?

24. Marital status

❍ Single, never married ❍ Married ❍ Cohabiting ❍ Divorced/Separated ❍Widowed

25. Do you have any children **under 18 and living at home**?

❍ Yes ❍ No

How old is your youngest child?

26. What is the highest level of education you have completed?

❍ No formal schooling

❍ Less than high school

❍ High school

❍ Associates/junior college

❍ Bachelor's

❍ Graduate

❍ Other (*please specify*)

If you attended college, what was your major?

27. What ethnicity do you consider yourself?

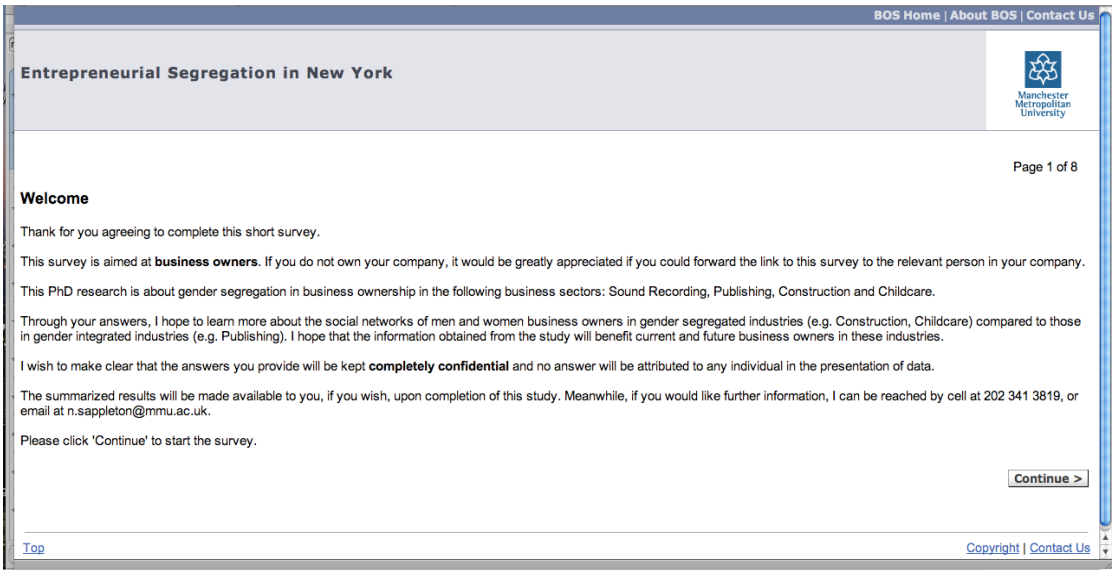
❍ Asian/Asian American ❍ Middle Eastern ❍ Black/African-American ❍ Native American ❍ Indian ❍ Pacific Islander ❍ Hispan/Latin ❍ White/Caucasian ❍ Other

If you stated 'other' please specify

28. What is your sexual orientation?

❍ Heterosexual ❍ Homosexual ❍ Bisexual ❍ Other ❍ Prefer not to say

Appendix 3: Survey Screenshots



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Welcome

Thank for you agreeing to complete this short survey.

This survey is aimed at **business owners**. If you do not own your company, it would be greatly appreciated if you could forward the link to this survey to the relevant person in your company.

This PhD research is about gender segregation in business ownership in the following business sectors: Sound Recording, Publishing, Construction and Childcare.

Through your answers, I hope to learn more about the social networks of men and women business owners in gender segregated industries (e.g. Construction, Childcare) compared to those in gender integrated industries (e.g. Publishing). I hope that the information obtained from the study will benefit current and future business owners in these industries.

I wish to make clear that the answers you provide will be kept **completely confidential** and no answer will be attributed to any individual in the presentation of data.

The summarized results will be made available to you, if you wish, upon completion of this study. Meanwhile, if you would like further information, I can be reached by cell at 202 341 3819, or email at n.sappleton@mmu.ac.uk.

Please click 'Continue' to start the survey.

Continue >

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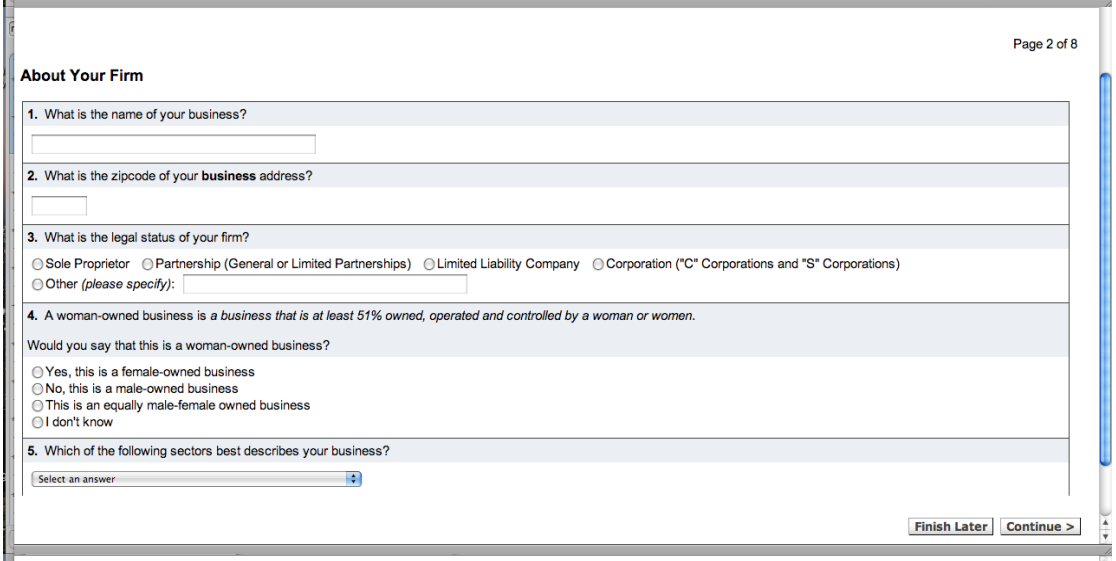

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About Your Firm

1. What is the name of your business?

2. What is the zipcode of your **business** address?

3. What is the legal status of your firm?

○ Sole Proprietor ○ Partnership (General or Limited Partnerships) ○ Limited Liability Company ○ Corporation ("C" Corporations and "S" Corporations)
○ Other *(please specify)*:

4. A woman-owned business is *a business that is at least 51% owned, operated and controlled by a woman or women.*

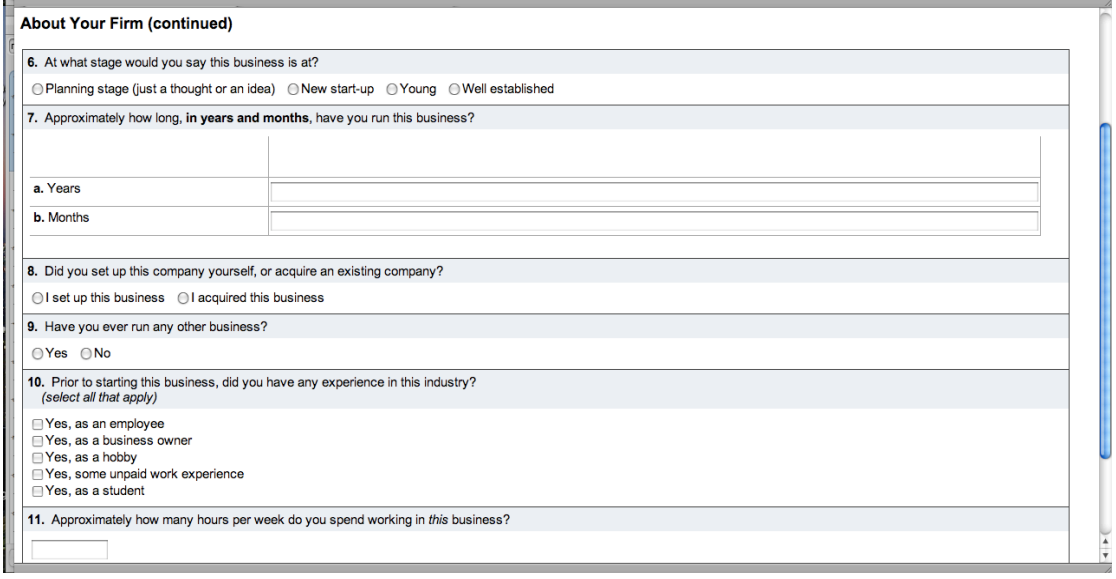
Would you say that this is a woman-owned business?

○ Yes, this is a female-owned business
○ No, this is a male-owned business
○ This is an equally male-female owned business
○ I don't know

5. Which of the following sectors best describes your business?

Select an answer

Finish Later | Continue >



About Your Firm (continued)

6. At what stage would you say this business is at?

○ Planning stage (just a thought or an idea) ○ New start-up ○ Young ○ Well established

7. Approximately how long, **in years and months**, have you run this business?

a. Years

b. Months

8. Did you set up this company yourself, or acquire an existing company?

○ I set up this business ○ I acquired this business

9. Have you ever run any other business?

○ Yes ○ No

10. Prior to starting this business, did you have any experience in this industry?
(select all that apply)

☐ Yes, as an employee
☐ Yes, as a business owner
☐ Yes, as a hobby
☐ Yes, some unpaid work experience
☐ Yes, as a student

11. Approximately how many hours per week do you spend working in *this* business?

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About Your Firm (continued)

12. Do you have any employees?

○ Yes ○ No Employees

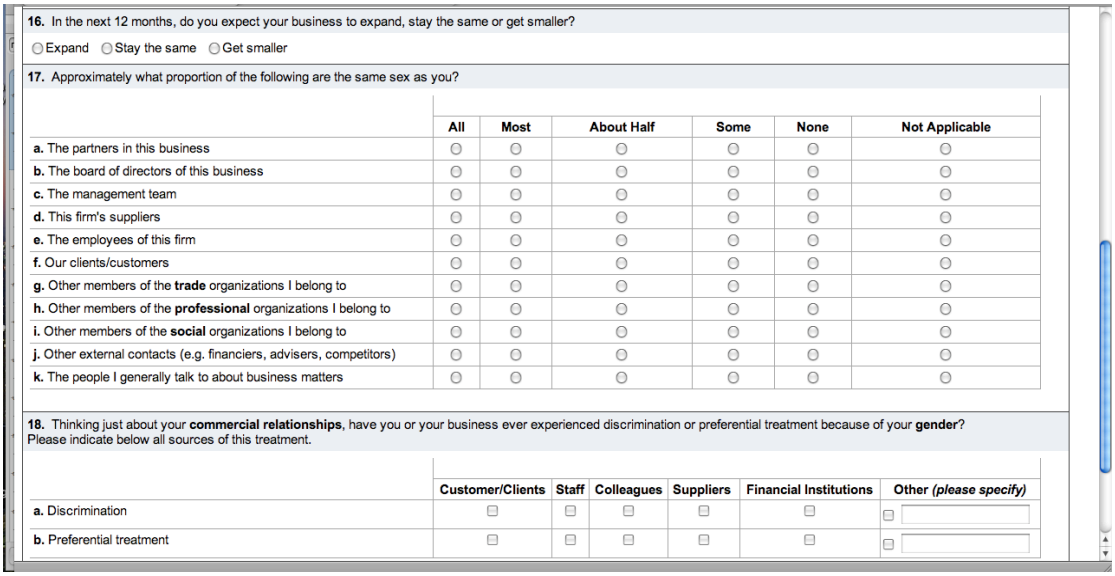
Approximately how many employees do you have?

13. What is your current personal annual income from this business? More Info

14. What is your best estimate of your firm's sales in the past 12 months? More Info

15. What is your best estimate of your firm's gross profit in the past 12 months? More Info

16. In the next 12 months, do you expect your business to expand, stay the same or get smaller?



16. In the next 12 months, do you expect your business to expand, stay the same or get smaller?

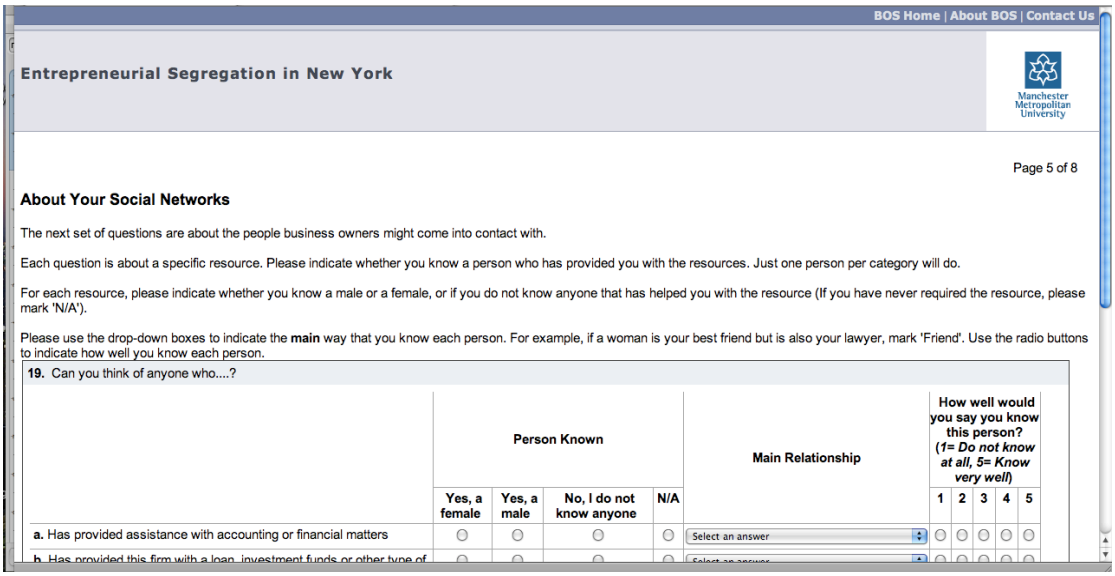
○ Expand ○ Stay the same ○ Get smaller

17. Approximately what proportion of the following are the same sex as you?

	All	Most	About Half	Some	None	Not Applicable
a. The partners in this business	○	○	○	○	○	○
b. The board of directors of this business	○	○	○	○	○	○
c. The management team	○	○	○	○	○	○
d. This firm's suppliers	○	○	○	○	○	○
e. The employees of this firm	○	○	○	○	○	○
f. Our clients/customers	○	○	○	○	○	○
g. Other members of the **trade** organizations I belong to	○	○	○	○	○	○
h. Other members of the **professional** organizations I belong to	○	○	○	○	○	○
i. Other members of the **social** organizations I belong to	○	○	○	○	○	○
j. Other external contacts (e.g. financiers, advisers, competitors)	○	○	○	○	○	○
k. The people I generally talk to about business matters	○	○	○	○	○	○

18. Thinking just about your **commercial relationships**, have you or your business ever experienced discrimination or preferential treatment because of your **gender**? Please indicate below all sources of this treatment.

	Customer/Clients	Staff	Colleagues	Suppliers	Financial Institutions	Other *(please specify)*
a. Discrimination	☐	☐	☐	☐	☐	☐
b. Preferential treatment	☐	☐	☐	☐	☐	☐



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About Your Social Networks

The next set of questions are about the people business owners might come into contact with.

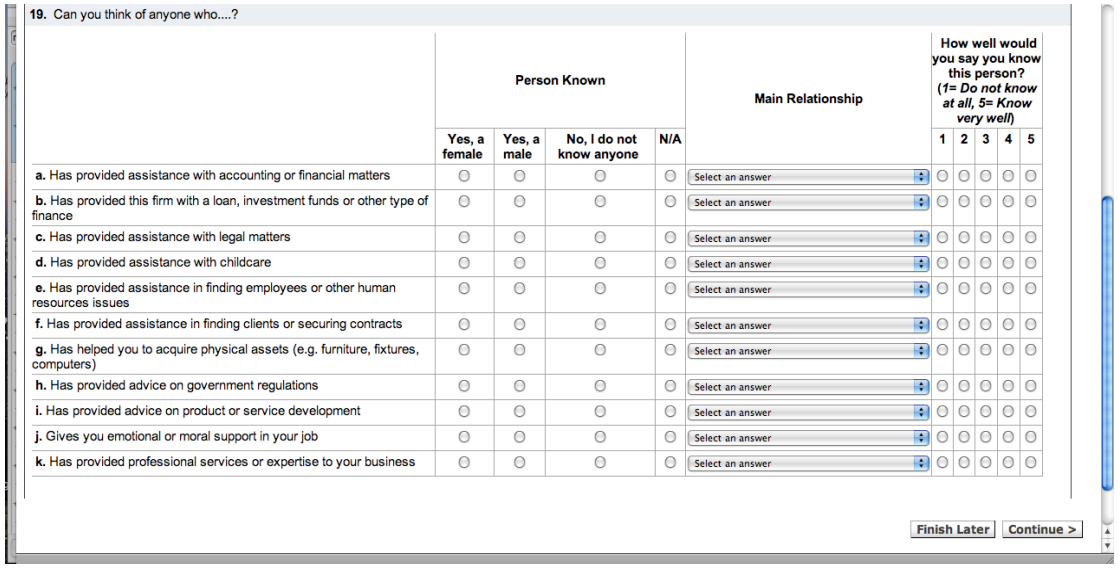
Each question is about a specific resource. Please indicate whether you know a person who has provided you with the resources. Just one person per category will do.

For each resource, please indicate whether you know a male or a female, or if you do not know anyone that has helped you with the resource (If you have never required the resource, please mark 'N/A').

Please use the drop-down boxes to indicate the **main** way that you know each person. For example, if a woman is your best friend but is also your lawyer, mark 'Friend'. Use the radio buttons to indicate how well you know each person.

19. Can you think of anyone who....?

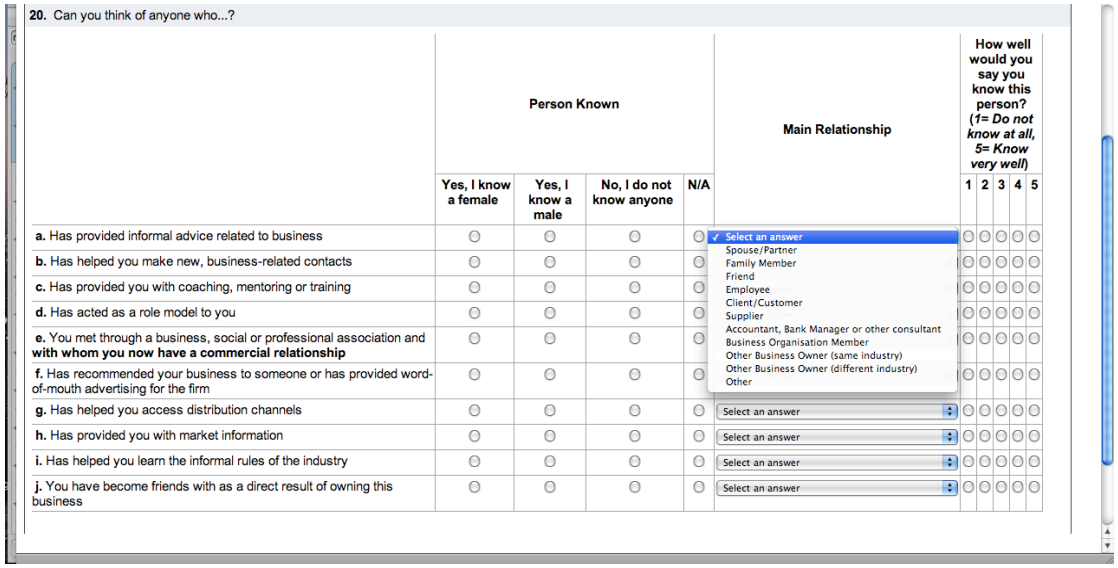
	Person Known				Main Relationship	How well would you say you know this person? *(1= Do not know at all, 5= Know very well)*				
	Yes, a female	Yes, a male	No, I do not know anyone	N/A		1	2	3	4	5
a. Has provided assistance with accounting or financial matters	○	○	○	○	Select an answer	○	○	○	○	○
b. Has provided this firm with a loan, investment funds or other type of	○	○	○	○	Select an answer	○	○	○	○	○



19. Can you think of anyone who....?

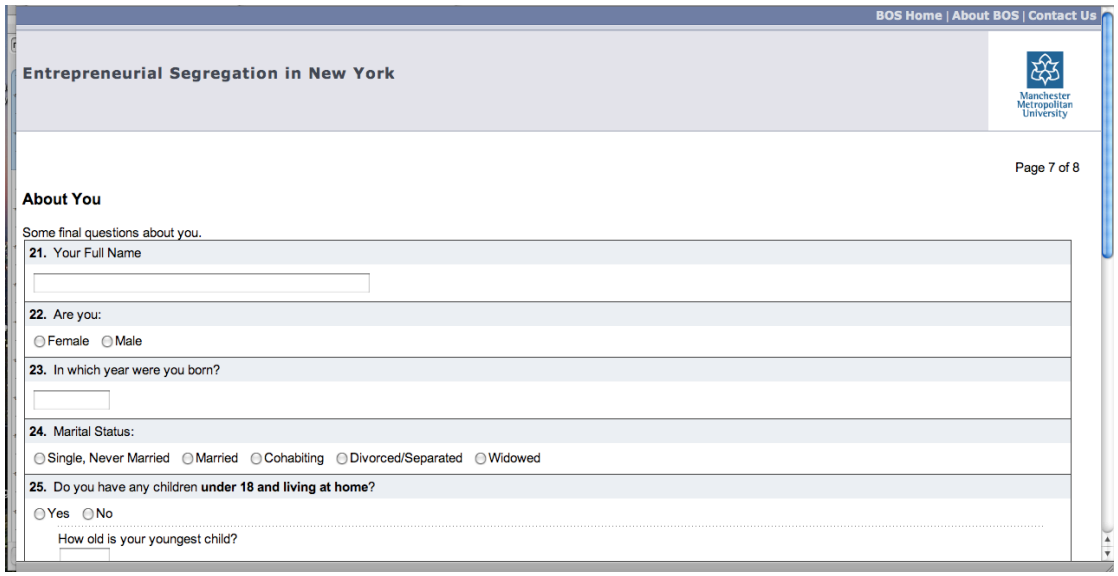
	Person Known				Main Relationship	How well would you say you know this person? (*1= Do not know at all, 5= Know very well*)				
	Yes, a female	Yes, a male	No, I do not know anyone	N/A		1	2	3	4	5
a. Has provided assistance with accounting or financial matters	○	○	○	○	Select an answer	○	○	○	○	○
b. Has provided this firm with a loan, investment funds or other type of finance	○	○	○	○	Select an answer	○	○	○	○	○
c. Has provided assistance with legal matters	○	○	○	○	Select an answer	○	○	○	○	○
d. Has provided assistance with childcare	○	○	○	○	Select an answer	○	○	○	○	○
e. Has provided assistance in finding employees or other human resources issues	○	○	○	○	Select an answer	○	○	○	○	○
f. Has provided assistance in finding clients or securing contracts	○	○	○	○	Select an answer	○	○	○	○	○
g. Has helped you to acquire physical assets (e.g. furniture, fixtures, computers)	○	○	○	○	Select an answer	○	○	○	○	○
h. Has provided advice on government regulations	○	○	○	○	Select an answer	○	○	○	○	○
i. Has provided advice on product or service development	○	○	○	○	Select an answer	○	○	○	○	○
j. Gives you emotional or moral support in your job	○	○	○	○	Select an answer	○	○	○	○	○
k. Has provided professional services or expertise to your business	○	○	○	○	Select an answer	○	○	○	○	○

Finish Later | Continue >



20. Can you think of anyone who...?

	Person Known				Main Relationship	How well would you say you know this person? (*1= Do not know at all, 5= Know very well*)				
	Yes, I know a female	Yes, I know a male	No, I do not know anyone	N/A		1	2	3	4	5
a. Has provided informal advice related to business	○	○	○	○	✓ Select an answer	○	○	○	○	○
b. Has helped you make new, business-related contacts	○	○	○	○	Spouse/Partner	○	○	○	○	○
c. Has provided you with coaching, mentoring or training	○	○	○	○	Family Member	○	○	○	○	○
d. Has acted as a role model to you	○	○	○	○	Friend	○	○	○	○	○
e. You met through a business, social or professional association and **with whom you now have a commercial relationship**	○	○	○	○	Employee	○	○	○	○	○
f. Has recommended your business to someone or has provided word-of-mouth advertising for the firm	○	○	○	○	Client/Customer	○	○	○	○	○
g. Has helped you access distribution channels	○	○	○	○	Supplier	Select an answer	○	○	○	○
h. Has provided you with market information	○	○	○	○	Accountant, Bank Manager or other consultant	Select an answer	○	○	○	○
i. Has helped you learn the informal rules of the industry	○	○	○	○	Business Organisation Member	Select an answer	○	○	○	○
j. You have become friends with as a direct result of owning this business	○	○	○	○	Other Business Owner (same industry)	Select an answer	○	○	○	○
					Other Business Owner (different industry)					
					Other					



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About You

Some final questions about you.

21. Your Full Name

22. Are you:

○ Female ○ Male

23. In which year were you born?

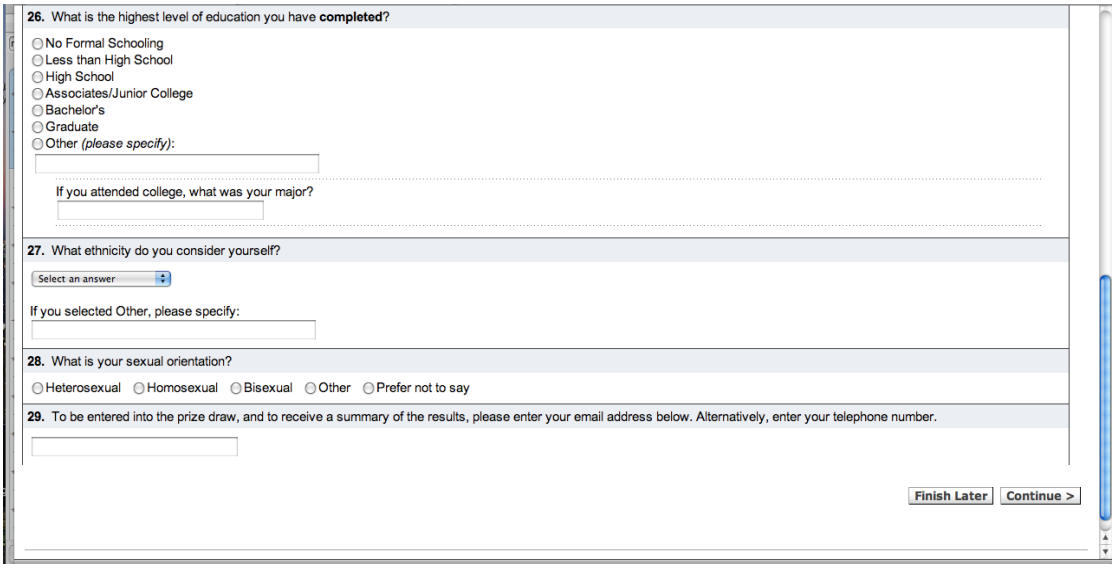
24. Marital Status:

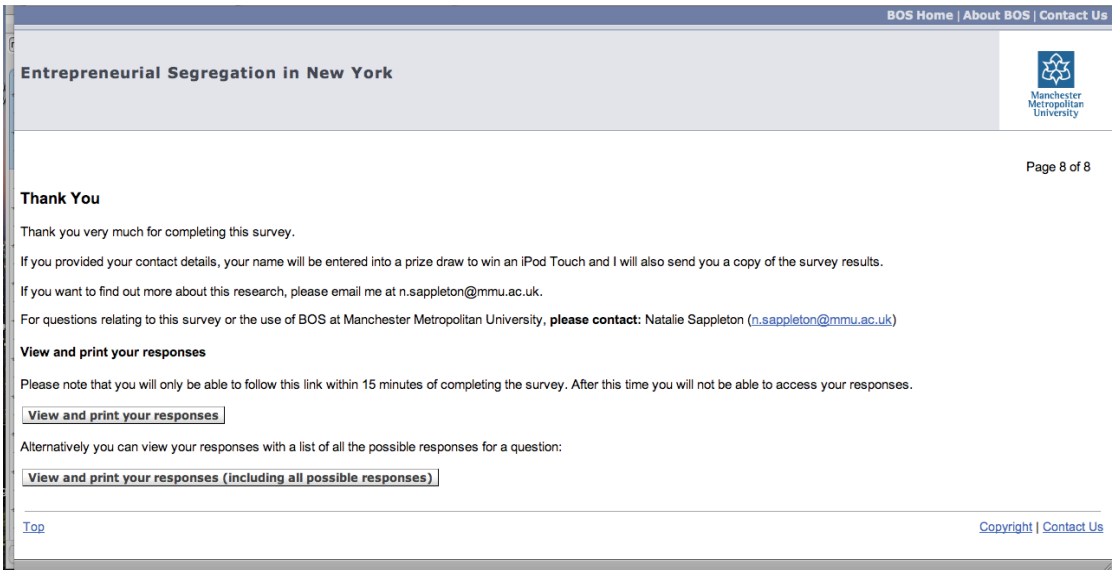
○ Single, Never Married ○ Married ○ Cohabiting ○ Divorced/Separated ○ Widowed

25. Do you have any children **under 18 and living at home**?

○ Yes ○ No

How old is your youngest child?





Appendix 4: Coding of college majors

Major	Coded as	% female	Coding
Acoustics	Engineering technologies	10.08	3
American Literature	English language and literature/letters	52.37	2
Ancient Greek	Foreign languages, literatures and linguistics	70.26	1
Architecture	Architecture and related services	42.71	2
Audio Development	Engineering technologies	10.08	3

Audio Engineering	Engineering	17.96	3
Business	Business	48.89	2
Business Administration	Business	48.89	2
Carpentry	Construction trades	2.98	3
Child Development	Family and consumer sciences	87.43	1
Child psychology	Psychology	77.21	1
Childhood and youth studies	Family and consumer sciences	87.43	1
Civil Engineering	Engineering	17.96	3
Creative writing	English language and literature/letters	52.37	2
Early years development	Family and consumer sciences	87.43	1
Early years education	Education	79.20	1
Economics			
Education	Education	79.20	1
Electrical Engineering	Engineering	17.96	3
Electronic engineering	Engineering	17.96	3
Electronics	Engineering technologies	10.08	3
Elementary Education	Education	79.20	1
Engineering	Engineering	17.96	3
Engineering and Finance	Engineering	17.96	3
English	English language and literature/letters	52.37	2
English and Creative Writing	English language and literature/letters	52.37	2
English and Theatre	English language and literature/letters	52.37	2
English Literature	English language and literature/letters	52.37	2
Environmental Bioscience	Biological and biomedical sciences	59.23	2
Family & Community services	Family and consumer sciences	87.43	1

Fashion Marketing	Business	48.89	2
Fine Art	Visual and performing arts	60.68	2
History	History	41.11	2
IT	Engineering technologies	10.08	3
Journalism	Communications, journalism and related	64.72	2
Law	Legal professions and studies	72.87	1
Liberal Arts	Liberal arts and sciences, general studies and humanities	64.72	1
Marketing	Business	48.89	2
Math	Mathematics and Statistics	43.26	2
Mechanical Engineering	Engineering	17.96	3
Media Communications	Communications, journalism and related	64.72	2
Music	Visual and performing arts	60.68	2
Music and History	Visual and performing arts	60.68	2
Political Science	Social Sciences	51.60	2
Psychology	Psychology	77.21	1
Public policy	Social Sciences	51.60	2
Publishing	Social Sciences	51.60	2
Social care	Social Sciences	51.60	2
Social history	History	41.11	2
Sound engineering	Engineering	17.96	3
Teaching	Education	79.20	1

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2008-09 Integrated Postsecondary Education Data System (IPEDS), Fall 2009. Coding: 1=Female dominated, 2= neutral, 3=male dominated

Appendix 5: Resources sought and acquired, by sex of owner and sector

Can you think of anyone who gives you emotional or moral support in your job?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	49.6	23.1	9.2	18.1
Men	58.8	1.7	8.4	31.1
Women	40.3	44.5	10.1	5

Traditional	53.2	16	10.6	20.2
Nontraditional	48.2	25.9	14.1	11.8
Male-dominated	46.2	16.8	18.5	18.5
Female-dominated	60	28.3	0	11.7
Integrated	45.8	30.5	0	23.7
MD Men	55.6	0	15.9	28.6
MD Women	35.7	35.7	21.4	7.1
FD Men	72.4	6.9	0	20.7
FD Women	48.4	48.4	0	3.2
I Men	51.9	0	0	48.1
I Women	40.6	56.3	0	3.1

Can you think of anyone who has acted as a role model to you?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	24.6	52.5	8.5	14.4
Men	18.8	65	1.7	14.5
Women	30.3	40.3	15.1	14.3
Traditional	27.2	63	2.2	7.6
Nontraditional	22.9	32.5	21.7	22.9
Male-dominated	10.4	65.2	17.4	7
Female-dominated	53.3	16.7	0	30
Integrated	23	63.9	0	13.1
MD Men	6.6	86.9	3.3	3.3
MD Women	14.8	40.7	33.3	11.1
FD Men	37.9	17.2	0	44.8
FD Women	67.7	16.1	0	16.1
I Men	25.9	66.7	0	7.4
I Women	20.6	61.8	0	17.6

Can you think of anyone who you have become friends with as a direct result of owning this business?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	48.7	39.9	4.2	7.1
Men	34.2	56.4	1.7	7.7
Women	62.8	24	6.6	6.6
Traditional	42.6	47.9	3.2	6.4

Nontraditional	50.6	30.6	7.1	11.8
Male-dominated	38.7	46.2	6.7	8.4
Female-dominated	61.7	26.7	1.7	10
Integrated	55.9	40.7	1.7	1.7
MD Men	25.4	65.1	3.2	6.3
MD Women	53.6	25	10.7	10.7
FD Men	44.8	41.4	0	13.8
FD Women	77.4	12.9	3.2	6.5
I Men	44	52	0	4
I Women	64.7	32.4	2.9	0

Can you think of anyone who has provided assistance with accounting or financial matters?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	41.3	52.1	1.7	5
Men	34.7	58.7	0	6.6
Women	47.9	45.5	3.3	3.3
Traditional	35.1	62.8	0	2.1
Nontraditional	32.9	55.3	2.4	9.4
Male-dominated	35.3	60.5	1.7	2.5
Female-dominated	31.7	56.7	0	11.7
Integrated	61.9	31.7	3.2	3.2
MD Men	28.6	69.8	0	1.6
MD Women	42.9	50	3.6	3.6
FD Men	13.8	65.5	0	20.7
FD Women	48.4	48.4	0	3.2
I Men	69	27.6	0	3.4
I Women	55.9	35.3	5.9	2.9

Can you think of anyone who has provided professional services or expertise to your business?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	35.1	47.5	9.9	7.4
Men	33.9	61.2	0	5
Women	36.4	33.9	19.8	9.9
Traditional	25.5	60.6	4.3	9.6

Nontraditional	37.6	36.5	23.5	2.4
Male-dominated	19.3	60.5	16.8	3.4
Female-dominated	55	26.7	6.7	11.7
Integrated	46	42.9	0	11.1
MD Men	14.3	79.4	0	6.3
MD Women	25	39.3	35.7	0
FD Men	62.1	31	0	6.9
FD Women	48.4	22.6	12.9	16.1
I Men	48.3	51.7	0	0
I Women	44.1	35.3	0	20.6

Can you think of anyone who has provided assistance with childcare?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	43.3	1.3	1.7	53.8
Men	28.2	0	1.7	70.1
Women	57.9	2.5	1.7	38
Traditional	46.7	3.3	2.2	47.8
Nontraditional	38.8	0	2.4	58.8
Male-dominated	39.3	3.4	0	57.3
Female-dominated	50	5	0	45
Integrated	44.3	0	0	55.7
MD Men	36.1	0	3.3	60.7
MD Women	42.9	0	3.6	53.6
FD Men	31	0	0	69
FD Women	67.7	9.7	0	22.6
I Men	7.4	0	0	92.6
I Women	73.5	0	0	26.5

Can you think of anyone who has provided this firm with a loan, investment funds or other type of finance?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	16.3	55	12.9	15.8
Men	14.3	56.3	4.2	25.2
Women	18.2	53.7	21.5	6.6
Traditional	26.6	55.3	1.1	17
Nontraditional	10.6	50.6	24.7	14.1

Male-dominated	10.1	63	13.4	13.4
Female-dominated	36.7	33.3	10	20
Integrated	8.2	60.7	14.8	16.4
MD Men	15.9	65.1	0	19
MD Women	3.6	60.7	28.6	7.1
FD Men	24.1	31	17.2	27.6
FD Women	48.4	35.5	3.2	12.9
I Men	63	37	0	0
I Women	14.7	58.8	26.5	0

Can you think of anyone who has provided assistance with legal matters?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	36.6	51.7	3.4	8.4
Men	32.5	55.6	0	12
Women	40.5	47.9	6.6	5
Traditional	37	51.1	0	12
Nontraditional	31.8	56.5	4.7	7.1
Male-dominated	27.4	59.8	3.4	9.4
Female-dominated	48.3	41.7	0	10
Integrated	42.6	45.9	6.6	4.9
MD Men	23	62.3	0	14.8
MD Women	32.1	57.1	7.1	3.6
FD Men	31	55.2	0	13.8
FD Women	64.5	29	0	6.5
I Men	55.6	40.7	0	3.7
I Women	32.4	50	11.8	5.9

Can you think of anyone who has provided you with coaching, mentoring or training?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	15	25.4	22.5	37.1
Men	1.7	26.1	21.8	50.4
Women	28.1	24.8	23.1	24
Traditional	18.1	22.3	21.3	38.3
Nontraditional	9.4	11.8	37.6	41.2

Male-dominated	6.7	22.7	37.8	32.8
Female-dominated	28.3	6.7	11.7	53.3
Integrated	18	49.2	3.3	29.5
MD Men	0	27	30.2	42.9
MD Women	14.3	17.9	46.4	21.4
FD Men	0	0	20.7	79.3
FD Women	54.8	12.9	3.2	29
I Men	7.4	51.9	3.7	37
I Women	26.5	47.1	2.9	23.5

Can you think of anyone who has provided advice on product or service development?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	30.3	43.3	11.8	14.7
Men	26.9	52.9	1.7	18.5
Women	33.6	33.6	21.8	10.9
Traditional	37.2	46.8	2.1	13.8
Nontraditional	27.1	25.9	30.6	16.5
Male-dominated	18.5	47.9	23.5	10.1
Female-dominated	60	15	0	25
Integrated	23.7	62.7	0	13.6
MD Men	22.2	61.9	3.2	12.7
MD Women	14.3	32.1	46.4	7.1
FD Men	51.7	13.8	0	34.5
FD Women	67.7	16.1	0	16.1
I Men	11.1	74.1	0	14.8
I Women	34.4	53.1	0	12.5

Can you think of anyone who has provided you with market information?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	27.8	47	10.3	15
Men	25.2	64.3	1.7	8.7
Women	30.3	30.3	18.5	21
Traditional	19.1	56.4	5.3	19.1
Nontraditional	42.2	28.9	19.3	9.6
Male-dominated	19.7	55.6	15.4	9.4

Female-dominated	50	20	5	25
Integrated	21.1	57.9	5.3	15.8
MD Men	11.1	77.8	3.2	7.9
MD Women	29.6	29.6	29.6	11.1
FD Men	65.5	27.6	0	6.9
FD Women	35.5	12.9	9.7	41.9
I Men	13	73.9	0	13
I Women	26.5	47.1	8.8	17.6

Can you think of anyone who has provided assistance in finding employees or other human resources issues?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	32.1	39.2	9.2	19.6
Men	25.2	52.1	3.4	19.3
Women	38.8	26.4	14.9	19.8
Traditional	29.8	41.5	6.4	22.3
Nontraditional	34.1	28.2	16.5	21.2
Male-dominated	14.3	45.4	15.1	25.2
Female-dominated	66.7	15	3.3	15
Integrated	32.8	50.8	3.3	13.1
MD Men	11.1	57.1	6.3	25.4
MD Women	17.9	32.1	25	25
FD Men	65.5	20.7	0	13.8
FD Women	67.7	9.7	6.5	16.1
I Men	14.8	74.1	0	11.1
I Women	47.1	32.4	5.9	14.7

Can you think of anyone who has provided advice on government regulations?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	22.9	42.9	7.5	26.7
Men	26.1	42.9	2.5	28.6
Women	19.8	43	12.4	24.8
Traditional	18.1	46.8	4.3	30.9
Nontraditional	40	22.4	15.3	22.4
Male-dominated	26.1	33.6	11.8	28.6
Female-dominated	33.3	38.3	5	23.3

Integrated	6.6	65.6	1.6	26.2
MD Men	20.6	44.4	3.2	31.7
MD Women	32.1	21.4	21.4	25
FD Men	55.2	24.1	3.4	17.2
FD Women	12.9	51.6	6.5	29
I Men	7.4	59.3	0	33.3
I Women	5.9	70.6	2.9	20.6

Can you think of anyone who you met through a business, social or professional association and with whom you now have a commercial relationship?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	23.3	45.8	19.5	11.4
Men	7.7	71.8	10.3	10.3
Women	38.7	20.2	28.6	12.6
Traditional	24.5	57.4	10.6	7.4
Nontraditional	20	30.6	40	9.4
Male-dominated	16.8	52.9	25.2	5
Female-dominated	33.3	28.3	23.3	15
Integrated	26.3	49.1	3.5	21.1
MD Men	9.5	81	6.3	3.2
MD Women	25	21.4	46.4	7.1
FD Men	10.3	48.3	27.6	13.8
FD Women	54.8	9.7	19.4	16.1
I Men	0	76	0	24
I Women	46.9	28.1	6.3	18.8

Can you think of anyone who has provided assistance in finding clients or securing contracts?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	30.8	50.8	10.8	7.5
Men	17.6	72.3	1.7	8.4
Women	43.8	29.8	19.8	6.6
Traditional	40.4	51.1	2.1	6.4
Nontraditional	22.4	35.3	28.2	14.1
Male-dominated	21.8	51.3	18.5	8.4
Female-dominated	51.7	28.3	6.7	13.3

Integrated	27.9	72.1	0	0
MD Men	22.2	71.4	0	6.3
MD Women	21.4	28.6	39.3	10.7
FD Men	24.1	48.3	6.9	20.7
FD Women	77.4	9.7	6.5	6.5
I Men	100	0	0	0
I Women	50	50	0	0

Can you think of anyone who has helped you to acquire physical assets?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	14.6	60	10.8	14.6
Men	5.9	80.7	0	13.4
Women	23.1	39.7	21.5	15.7
Traditional	19.1	69.1	0	11.7
Nontraditional	5.9	47.1	28.2	18.8
Male-dominated	5	63.9	20.2	10.9
Female-dominated	28.3	48.3	0	23.3
Integrated	19.7	63.9	3.3	13.1
MD Men	6.3	85.7	0	7.9
MD Women	3.6	39.3	42.9	14.3
FD Men	10.3	62.1	0	27.6
FD Women	45.2	35.5	0	19.4
I Men	0	88.9	0	11.1
I Women	35.3	44.1	5.9	14.7

Can you think of anyone who has helped you access distribution channels?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	11.7	32.1	10.8	45.4
Men	0	46.2	5	48.7
Women	23.1	18.2	16.5	42.1
Traditional	3.2	35.1	8.5	53.2
Nontraditional	11.8	11.8	16.5	60
Male-dominated	8.4	32.8	16.8	42
Female-dominated	5	6.7	3.3	85
Integrated	24.6	55.7	6.6	13.1

MD Men	0	49.2	9.5	41.3
MD Women	17.9	14.3	25	42.9
FD Men	0	6.9	0	93.1
FD Women	9.7	6.5	6.5	77.4
I Men	0	81.5	0	18.5
I Women	44.1	35.3	11.8	8.8

Can you think of anyone who has provided informal advice related to business?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	32.9	58.8	4.2	4.2
Men	19.3	75.6	0	5
Women	46.3	42.1	8.3	3.3
Traditional	34	63.8	0	2.1
Nontraditional	36.5	42.4	11.8	9.4
Male-dominated	30.3	56.3	8.4	5
Female-dominated	45	48.3	0	6.7
Integrated	26.2	73.8	0	0
MD Men	19	77.8	3.2	0
MD Women	42.9	32.1	17.9	7.1
FD Men	24.1	62.1	0	13.8
FD Women	64.5	35.5	0	0
I Men	14.8	85.2	0	0
I Women	35.3	64.7	0	0

Can you think of anyone who has helped you make new, business related contacts?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	28.6	57.1	10.9	3.4
Men	4.2	89.1	1.7	5
Women	52.9	25.2	20.2	1.7
Traditional	28.7	69.1	0	2.1
Nontraditional	22.9	38.6	31.3	7.2
Male-dominated	17.1	59	20.5	3.4
Female-dominated	43.3	46.7	3.3	6.7
Integrated	36.1	63.9	0	0

MD Men	3.2	93.7	3.2	0
MD Women	33.3	18.5	44.4	3.7
FD Men	3.4	75.9	6.9	13.8
FD Women	80.6	19.4	0	0
I Men	7.4	92.6	0	0
I Women	58.8	41.2	0	0

Can you think of anyone who has recommended your business to someone or who has provided word of mouth advertising for the firm?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	40.5	45.5	9.9	4.1
Men	28.6	64.5	0	6.6
Women	52.1	26.4	19.8	1.7
Traditional	45.7	47.9	0	6.4
Nontraditional	31.8	35.3	28.2	4.7
Male-dominated	24.4	48.7	20.2	6.7
Female-dominated	68.3	28.3	0	3.3
Integrated	44.4	55.6	0	0
MD Men	23.8	66.7	0	9.5
MD Women	25	28.6	42.9	3.6
FD Men	44.8	48.3	0	6.9
FD Women	90.3	9.7	0	0
I Men	24.1	75.9	0	0
I Women	61.8	38.2	0	0

Can you think of anyone who has helped you learn the informal rules of the industry?

	Female provider	**Male provider**	**Unprovided**	**Not sought**
All	28.8	48.3	9.3	13.6
Men	20.5	60.7	8.5	10.3
Women	37	36.1	10.1	16.8
Traditional	18.1	58.5	6.4	17
Nontraditional	42.2	27.7	18.1	12
Male-dominated	16.2	54.7	15.4	13.7
Female-dominated	55	23.3	5	16.7

Integrated	27.1	61	1.7	10.2
MD Men	4.8	73	9.5	12.7
MD Women	29.6	33.3	22.2	14.8
FD Men	65.5	17.2	10.3	6.9
FD Women	45.2	29	0	25.8
I Men	8	80	4	8
I Women	41.2	47.1	0	11.8

Appendix 6 Bivariate correlations, multiple regressions on resource acquisition

6a Bivariate correlations, women owned, female-dominated firms, n=25

	Resources	Firm age^2	Human capital	Experience	Strong ties	Male ties	Mixed network	Heterophilious network	Trade	Professional	Social	Discrimination
Resources	1.00	-.207	-.134	.220	0.09	-.102	-.564**	.175	.082	.082	.238	.070
Firm age2	-.207	1.000	-.065	.127	0.05	.067	.098	-.256	.191	.191	.098	.233
Human capital	-.134	-.065	1.000	-.079	0.69***	-.092	.152	-.024	.115	.115	.122	-.053
Experience	.220	.127	-.079	1.000	-.023	.386	-.049	.309	-.073	-.073	-.078	.542**
Strong ties	.090	.051	.690***	-.023	1.000	-.151	-.164	.113	.214	.214	.287	.153
Male ties	-.102	.067	-.092	.386	-.151	1.000	.566**	.513*	-.872***	-.872***	-.746***	.738***
Mixed network	-.564**	.098	.152	-.049	-.164	.566**	1.000	-.160	-.562**	-.562**	-.598**	.066
Heterophilious network	.175	-.256	-.024	.309	.113	.513*	-.160	1.000	-.486*	-.486*	-.517*	.746***
Trade	.082	.191	.115	-.073	.214	-.872***	-.562**	-.486*	1.000	1.000***	.688**	-.450*
Professional	.082	.191	.115	-.073	.214	-.872***	-.562**	-.486*	1.000***	1.000	.688***	-.450*
Social	.238	.098	.122	-.078	.287	-.746***	-.598**	-.517*	.688***	.688***	1.000	-.479*
Discrimination	.070	.233	-.053	.542**	.153	.738***	.066	.746***	-.450*	-.450*	-.479*	1.000

6b Bivariate correlations, women owned, sex-integrated firms, n=23

	Resources	Firm age^2	Human capital	Experience	Strong ties	Male ties	Mixed network	Heterophilious network	Trade	Professional	Social	Discrimination
Resources	1.000	.049	.669***	.019	.298	.586**	-0.16	0.18	-.185	-.264	.497**	-.420*
Firm age2	.049	1.000	-.197	.178	.619***	.215	0.05	-.155	.084	-.121	-.200	-.152
Human capital	.669***	-.197	1.000	-.054	.015	.264	0.11	-.058	-.192	-.250	.383*	-.570**
Experience	.019	.178	-.054	1.000	-.175	-.048	-.120	.066	-.095	-.124	-.040	.206
Strong ties	.298	.619***	.015	-.175	1.000	.622**	-.214	.256	-.022	-.142	-.086	-.196
Male ties	.586**	.215	.264	-.048	.622***	1.000	-.622***	.312	.246	.235	.548**	.001
Mixed network	-.160	.050	.105	-.120	-.214	-.622***	1.000	-.550**	-.578**	-.603***	-.339	-.492**
Heterophilious network	.177	-.155	-.058	.066	.256	.312	-.550**	1.000	-.186	-.161	-.131	.421*
Trade	-.185	.084	-.192	-.095	-.022	.246	-.578**	-.186	1.000	.946***	.190	.423*
Professional	-.264	-.121	-.250	-.124	-.142	.235	-.603***	-.161	.946***	1.000	.248	.533**
Social	.497**	-.200	.383*	-.040	-.086	.548**	-.339	-.131	.190	.248	1.000	-.153
Discrimination	-.420*	-.152	-.570**	.206	-.196	.001	-.492**	.421*	.423*	.533**	-.153	1.000

6c Bivariate correlations, women owned, male-dominated firms, n=44

	Resources	Firm age^2	Human capital	Experience	Strong ties	Male ties	Mixed network	Heterophilious network	Trade	Professional	Social	Discrimination
Resources	1.000	.183	-.134	.096	-.401**	.613***	.135	.162	-.280*	-.186	-.107	.129
Firm age2	.183	1.000	.070	.221	-.152	.137	.070	-.137	.144	-.036	-.049	.086
Human capital	-.134	.070	1.000	.082	.138	-.012	.274*	-.159	.115	-.089	-.107	-.099
Experience	.096	.221	.082	1.000	.427**	-.105	-.428**	.295*	.109	-.093	-.260*	-.365**
Strong ties	-.401**	-.152	.138	.427**	1.000	-.215	-.434**	.137	.363**	-.122	-.208	-.487***
Male ties	.613***	.137	-.012	-.105	-.215	1.000	-.143	.429**	-.416**	-.389**	-.375**	.053
Mixed network	0.14	.070	.274*	-.428**	-.434**	-.143	1.000	-.690***	.000	.196	.416	0.45***
Heterophilious network	0.16	-.137	-0.16	.295*	.137	.429**	-.690***	1.000	-.564***	-.594***	-.762	-0.16
Trade	-0.28*	.144	0.12	.109	0.36**	-.416**	0.00	-.564***	1.000	.447***	.596	-.382***
Professional	-0.19	-.036	-.089	-.093	-.122	-.389**	0.20	-.594***	.447***	1.000	.808***	.019
Social	-0.11	-.049	-.107	-.260*	-.208	-.375**	0.42**	-.762***	.596***	.808***	1.000	-.044
Discrimination	0.13	0.09	-.099	-.365**	-.487***	.053	0.45***	-.157	-.382	.019	-.044	1.000